1978-79
Catalog

The Williamsport Area Community College

The Williamsport Area Community College

A Two-Year, Co-Educational,

Publicly Supported Institution

Serving North Central Pennsylvania,

Fully Accredited Member of

Middle States Association of Colleges

and Secondary Schools.

The Williamsport Area Community College does not discriminate on the basis of age, sex, handicap, race, religion, creed, or national origin. Any student who feels he/she has been discriminated against in contacts with The Williamsport Area Community College should contact the Dean for Student and Career Development in Room 201 of the Klump Academic Center, (717) 326-3761, ext 243.

The Williamsport Area Community College

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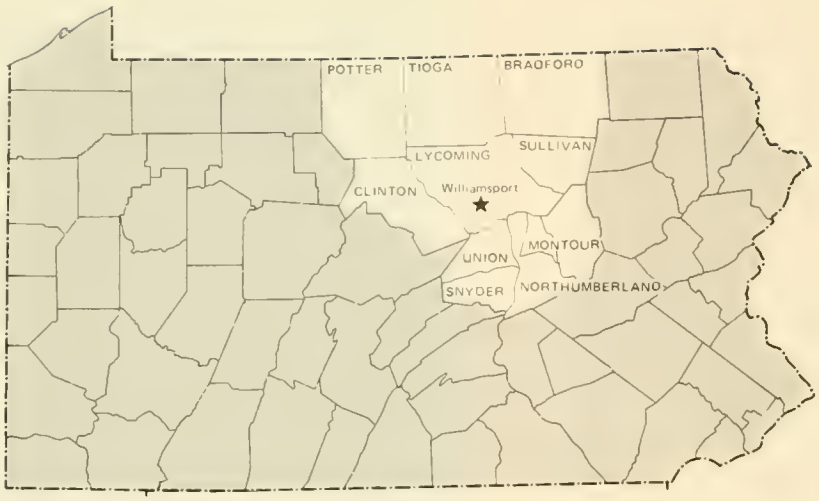
Programs are listed in alphabetic order by program name.

THE WILLIAMSPORT AREA COMMUNITY COLLEGE

CATALOG AND ANNOUNCEMENT OF COURSES

1978-1979

1005 WEST THIRD STREET
WILLIAMSPORT, PENNSYLVANIA 17701
(717) 326-3761



SPONSOR SCHOOL DISTRICTS

Bradford County
- Canton Area
- Troy Area

Clinton County
- Keystone Central

Columbia County
- Millville

Lycoming County
- East Lycoming
- Jersey Shore Area
- Montgomery Area
- Montoursville Area
- South Williamsport Area
- Williamsport Area

Northumberland County
- Line Mountain
- Warrior Run

Potter County
- Northern Potter

Snyder County
- Selinsgrove
- Midd-West

Sullivan County
- Sullivan County District

Tioga County
- Northern Tioga Area
- Southern Tioga Area
- Wellsboro Area

Union County
- Mifflinburg Area

CAMPUS MAP

1 Secondary Automotive Building

2& 3 Electrical Building
Electrical Technology
Electrical Construction
Welding

4 Machine Shop Building
Machine Tool Technology
Machinist - General
Plumbing

5 William Stitzel Building
Diesel Mechanics

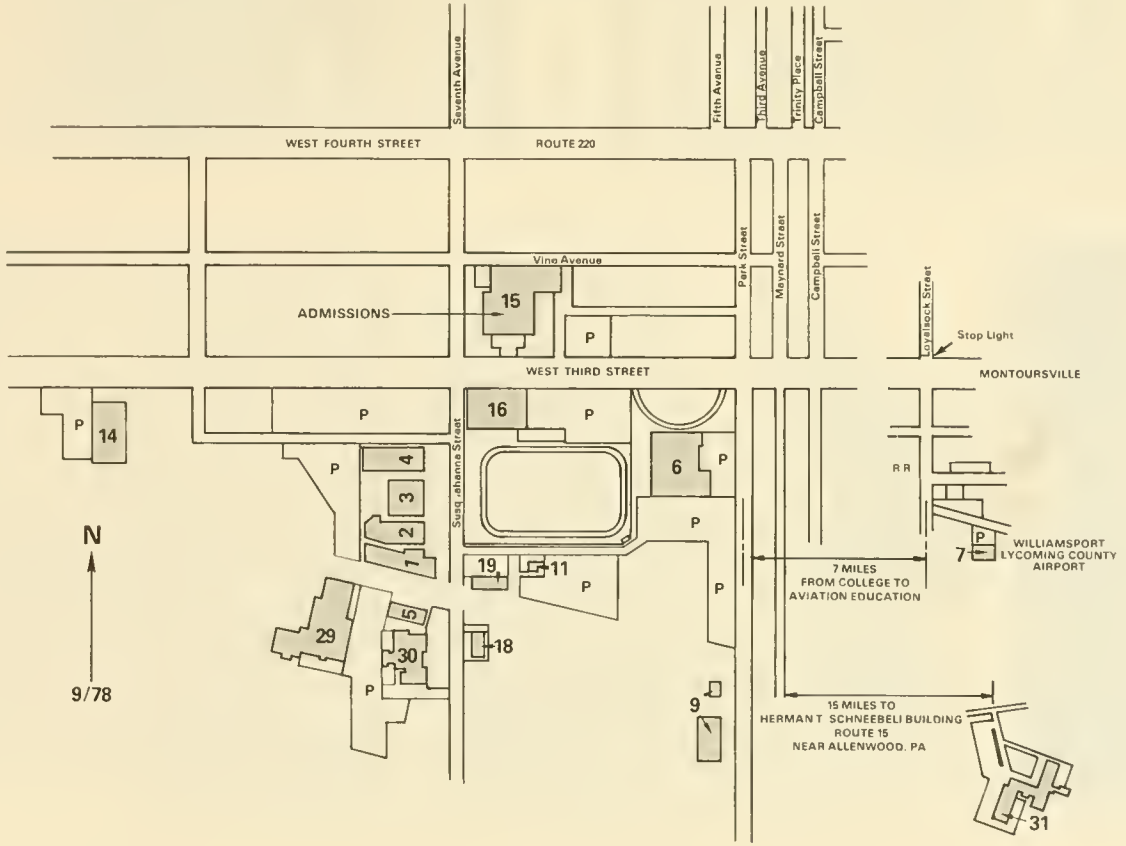
6
Architectural Technology
Broadcasting
Electronics Technology
Engineering Drafting Tech.
Graphic Arts
Mechanical Drafting
Printing
Technical Illustration
Science Laboratories
President's Office
Institutional Research
Resource Development Office
Dean of Administration
Business Operations
Financial Operations
Personnel Office

7 WACC Hanger at Airport
Aviation Technician

9 Crooks Maintenance Bldg

11 Student Government House
SGA Offices

14 Rishel Building
Reading Laboratory
Sign Painting
Learning Resources Center



15 Klump Academic Center
Accounting
Advertising Art
Business Management
Clerical Studies
Communications, Humanities, Social Science
Computer Science
Dental Hygiene
Developmental Studies
Dietetic Technician
English
Food & Hospitality Management
Journalism
Marketing/Merchandising
Mathematics
Mathematics/English Laboratory
Operating Room Technician
Practical Nursing
Secretarial Science
Technical Illustration
ACES Office
Admissions
Alumni Office
Dean, Community Education
Dean, Student & Career Development
Bursar
Cafeteria
Career Development Center
Computer Center
Counseling
Dean, Degree & Certificate Programs
Financial Aid
Notary Public
Placement
Postsecondary Cooperative Education
Records
Security (Parking, Lost & Found)
Spotlight
Student Activities
Student Ombudsman
Tot Watch
Veteran's Information

16 Lewis Bardo Gym
Physical Education & Health

18 Media Center

19 Lair
Dispensary
Student-Faculty Center

29 Cromar Building
Carpentry
Carpentry & Building
Construction Technology
Civil Engineering Technology
Plumbing
Bookstore
Dean, Secondary Vocational Programs

30 George Parkes Building
Auto Body Repair
Automotive Mechanics
Automotive Technology

31 Herman Schneebeli Building
Agribusiness
Floriculture
Forest Technology
Heavy Construction Equipment
Service & Operation
Nursery Management

ABOUT THE COLLEGE

A Message from the President

The Williamsport Area Community College has been a pioneer and a leader in vocational education since the early part of the twentieth century. Today, we are continuing to build upon our long tradition as a unique educational institution serving the needs of both secondary and postsecondary students.

Our over 3,200 postsecondary degree and certificate students come to us from every county in the Commonwealth, as well as from out-of-state and several foreign countries, to enroll in over 47 vocational-technical, career, and college and university transfer programs. In addition, each year we serve over 8,000 North Central Pennsylvania citizens through diverse non-credit community education courses and special programs taught within our ten county service area.

This Catalog describes our postsecondary instructional services and programs. No matter what your objective – personal development, career development – or both, we are interested in helping you achieve your greatest potential. Any adult of any age may take advantage, on a full-time or part-time basis, of the variety of educational opportunities available at The Williamsport Area Community College. We invite you to explore these opportunities with us.

William H. Feddersen

President

Philosophical Platform

We believe in people – in their dignity, in their worth as individuals, and in their capacity to develop their abilities to the fullest potential. We believe that people who perform competently and who find meaning in their work will be healthier and happier people, and the organizations in which they work and the communities in which they live will benefit. We believe in an integrated approach to learning where education and the world of work function in a co-operative atmosphere. We believe that by assisting people in discovering, preparing for, developing and maintaining a career we are also developing the individual and the community.

Mission Statement

It is the mission of The Williamsport Area Community College to provide performance-oriented educational services responsive to the current and future needs and interests of individuals and organizations in our service area. We are dedicated to working with other agencies in developing the full potential of individuals and communities in our area. We are deeply committed to providing quality and accessible career education on both the secondary and postsecondary level, as well as lifelong learning opportunities. Within the resources available to us, we will attempt to carry out our mission as efficiently as possible. Above all, we care about people and will attempt to fulfill our mission within the context of a humanistic educational environment.

Institutional Goals

Primary Goals

1. Provide equal educational opportunities for all citizens of the service area within the context of a humanistic educational environment.

2. Prepare or retrain individuals for employment and advancement through a comprehensive program of career education.

3. Provide services which assist secondary and postsecondary students to explore their career interests, to recognize their aptitudes, develop an educational program which best suits their needs, interests, and potential for personal growth, and to obtain employment in their chosen fields.

4. Contribute to the lifelong learning opportunities of our service area through on- and off-campus educational programs in co-operation with other organizations.

Support Goals (Internal)

1. Strive for effectiveness and efficiency in all aspects of institutional operation.

2. Provide appropriate facilities, attractive grounds, and a physical environment which stimulate and enhance learning.

3. Offer programs of staff development for all personnel which foster an institutional climate favorable to individual growth and encourage participation in decision-making by all constituents.

4. Provide an opportunity for communication between the College and all those affected by its operation.

Support Goals (External)

1. Provide for adequate financial resources to support the institution's programs and services.

2. Co-operate with other institutions, organizations, and agencies in formulating and implementing viable programs and services.

3. Communicate the College's mission, goals, objectives, and programs to the public.

4. Maintain accountability to the public, to students, to sponsor school districts, and to the State with regard to the educational, fiscal, legal, and contractual aspects of the operation of the College.

Affirmative Action Policy

The Williamsport Area Community College is committed to the concept and practice of equal opportunity for employment and achievement.

To this end, the Board of Trustees hereby adopts a formal statement of philosophy recognizing that the employment practices of The Williamsport Area Community College will insure fair and equal consideration for all positions, and the College will engage in an affirmative action program to accomplish this. This consideration should be based on non-discriminatory standards, without regard to race, color, sex, age, mental or physical impairment, religion, place of residence or national origin, and that the retention, training, transfer, promotion, and up-grading of all employees are equally subject to these conditions.

History

The Williamsport Area Community College, which now serves over 444,000 people in ten North Central Pennsylvania counties, plus students from other counties, states, and countries, was born in 1914 as a small industrial arts shop at the Williamsport High School. Woodworking and machine shop were the first courses offered.

In 1920, following World War I, retraining veterans, many of them disabled, led to the establishment of the first full-time adult day school in a downtown building. Courses were expanded to include pattern-making, automotive, and electric. An evening industrial school was started at the same time.

In 1927, to meet the demands for supervisors in the rapidly increasing number of diversified industries in the area, the Williamsport School District and the Williamsport Chamber of Commerce co-sponsored evening conferences in foremanship training. One hundred fifty foremen from 20 plants took the advanced training. This type of cooperation between the school and local industry has continued throughout the institution's history. The goal has always been to meet both individual and industry needs.

During the Twenties a co-operative work-study industrial course for students over sixteen was begun. By 1929, forty-eight companies were employing students who were proficient in school shops for alternating periods of work and study.

During the Depression the co-operation between the school and local industry gained nationwide recognition for its efficient and effective attack on rising unemployment through the retraining of men to fill the increasing number of skilled trade positions in the local plants. The Williamsport Plan, which became known and was copied throughout the country, encompassed co-operative training of Civilian Conservation Corps and National Youth Administration young men. Many Works Progress Administration instructors participated in the program.

One example of innovation was a truck driver training course using borrowed trucks. The first of its kind in the nation, the course evolved into the present safe driver course which is part of many high school curriculums. In the heart of the Depression when other school districts were cutting budgets, such imaginative programs so impressed the community that it voted to build a new vocational building to meet the increased enrollment in the high school and adult programs.

On May 21, 1940, only eleven days after Holland and Belgium had been invaded, the school board appointed a special Emergency Training Commission to plan what part the school would play in the conflict which seemed certain to spread. At the end of the regular school term on June 14, the staff and facilities were immediately shifted from training unemployed men and women to 24-hour a day defense industry training. The institution was one of the first, if not the first, in the country to begin defense training.

By 1941 an astounding 6,500 adults were enrolled. The adult education program and the vocational high school program were merged into one unit known as the Williamsport Technical Institute. The separate programs of study were maintained.

Early in 1942 an intensified program for training handicapped persons for war production was started in co-operation with a local plant and the Pennsylvania Rehabilitation Service. This experience was later applied to anticipating the need to plan for similar training of veterans after the war. Thousands of veterans, many of them disabled, learned trades for post-war jobs using G.I. benefits and school scholarships provided in co-operation with local manufacturers.

Always striving to anticipate and fill area needs, in 1945 the Institute adopted the Watsontown Plan, forerunner of the area technical schools which have since spread throughout the state. In 1947 a job-training and safety program was begun to meet the needs of rural electric co-operatives in Pennsylvania.

Another first in the country, the Vocational Diagnostic Program, was developed in 1951. It provided a practical method for vocational counseling of rehabilitation clients and those with limited educational backgrounds. Individual clients and those from groups such as the United Mine Workers and the Pennsylvania State Council for the Blind have made extensive use of this unique program.

By 1953 the Williamsport Technical Institute's international reputation as an outstanding vocational center earned it official approval to train foreign students. Many foreign educators enrolled to study the methods of vocational education as a guide to establishing similar centers in their own countries.

In 1956 the Institute worked closely with the new Industrial Development Committee of the Williamsport Chamber of Commerce which was created to draw new industry to the city. A major factor in the relocation of several companies has been the availability of trained workers and the institution's ability to provide special courses to meet specific needs of these companies.

As a result of the passage of the Community College Act of 1963, studies were begun which led to the establishment of The Williamsport Area Community College. The Institute served as the base for the new institution which opened for classes on September 7, 1965. Students, faculty, staff, administration, and facilities all became part of WACC. Since then, facilities have continued to expand and programs have been revised to keep pace with current needs.

During the 1973-74 academic year the College's academic and administrative structure was reorganized to streamline the College's programs and institute modern management methods. The aim was to maintain WACC's historical mission of meeting educational needs while providing greater operational efficiency.

In 1976 the College's Career Development Center was opened to provide career planning services to area residents and students. The Center brought together services ranging from assistance in making career decisions to workshops in resume writing and job interview techniques. The Career Development Center has broadened the services available to our community while reflecting the College's historical commitment to career-oriented education.

Services to sponsor districts were expanded in 1976 to include the offering of credit and non-credit courses at locations throughout the sponsor districts. By using the facilities of schools and other organizations throughout the sponsor area the College has been able to offer courses to individuals in their local area.

The Williamsport Area Community College is presently working on a facilities improvement program which includes both renovation and new construction. The proposed improvements are designed to ensure that the College can continue to provide area residents with educational programs and services.

ADMISSION

Admissions Policy

The College operates under an open door admissions policy. Entrance examinations are not required for admission to the College. All applicants are eligible to enter the College, but are not guaranteed acceptance into a specific program. The College does not discriminate with regard to age, sex, physical or mental impairment, marital status, race, national origin or religion.

In general, a high school diploma or its equivalent is necessary for a student to be admitted on a full-time basis. Adults without these credentials are also eligible for admission into a program appropriate to the aptitudes and abilities of the particular individual.

To implement this policy, the College offers a variety of programs and provides professional counseling to assist the applicant in selecting a program.

Required High School Subjects

The completion of specific high school subjects is required for admission to some of WACC's programs. (See program description for required courses.) It may be possible for students who have not met these requirements to enroll in the program and fulfill the requirements by completing additional recommended courses at WACC.

Admission Procedure

Full-Time and Part-Time Degree and Certificate Students

1. Obtain an application for admission by mailing one of the postcards at the back of this catalog, or by writing to:
   Admissions Office
   Williamsport Area Community College
   1005 West Third Street
   Williamsport, Pennsylvania 17701
   or phone (717) 326-3761, Ext. 336

2. Submit a completed application form along with a $15 application fee (non-refundable) to the Admissions Office.

3. Transcripts
   High School Graduates: If you have already graduated from high school, have your high school counselor mail a transcript directly to the Director of Admissions at The Williamsport Area Community College. If you have not graduated from high school, have your high school counselor mail a transcript of the first three years of your high school work and a supplementary transcript after you have graduated.

   GED Examinations: Students who have satisfied the high school graduation requirements by taking the General Education Development examination should have their scores forwarded to the Director of Admissions by the official GED center where the test was taken. If the GED examination was taken through the United States Armed Forces Institute, you must write to them (in Madison, Wisconsin) to request that your scores be forwarded to the College Admissions Office. Applicants must be at least 18 years of age before these scores can be used for admission purposes.

4. An interview is not required before you submit an application. However, applicants may be asked to come to the College for an interview after submitting complete credentials. If at any time, you need additional information or assistance, you can arrange for an interview by writing or calling the Admissions Office.

5. College Placement Testing
Standardized tests entrance examinations (ACT-SAT) are NOT required for admission to the College. However, applicants for admission must participate in the College's placement testing program. The only exceptions are transfer students who have successfully completed one or more semesters at another institution and those applicants submitting ACT or SAT scores indicating readiness for college-level work. Placement testing is part of the admissions requirement.

   Placement test results are not used to determine admission to the College; they are used to determine whether entry-level skills indicate a readiness for college-level courses or a need for preparatory courses offered by Developmental Studies (see pg. 22).

   The placement test package includes the Gates-MacGinitie reading test, an in-house-developed arithmetic test, the Nelson-Denny reading test, the College Board Level One mathematics test, and a writing sample. Applicants, depending on their program choice, take a combination of these tests.

6. Tuition Deposit
All applicants who have been accepted as full-time degree or certificate students must make a $50 non-refundable Tuition Deposit to hold a class reservation in the first semester for which they have applied. If you enroll at the designated time, the deposit will be credited to your first semester's tuition. If you do not enroll at the designated time, the deposit is non-refundable and can not be carried forward to another semester.

7. All accepted applicants must submit a Health Appraisal Record Form prior to registration.

Foreign Students

Foreign students should follow the above procedures in applying for admission to the College. They must also fulfill the requirements as outlined by the Immigration and Naturalization Service Form I-20.

Non-Degree Students

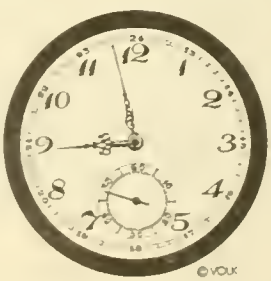
A student who does not wish to pursue a degree or certificate program is not required to make a formal application for admission or to file credentials. If, at a later date, a non-degree student desires to enroll in a degree or certificate program, an application for admission, together with other required credentials, must be submitted to the Admissions Office.

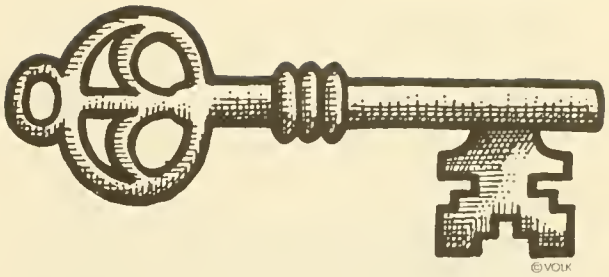
Admission Preferences

Preference for admission will be given to WACC sponsoring school district applicants and WACC Secondary Vocational Students whose applications have been received prior to February 1. It should be noted that most programs have sufficient space for all applying students, although exceptions in certain areas of study may occur from year to year.

Early Admission Policy

A student of exceptional ability who has completed the eleventh grade in an accredited high school may be enrolled as a full-time or part-time student at WACC in either a degree or certificate program during what would normally be the senior year in high school. To qualify for such early admission, the chief administrative officer of your high school must approve and submit the application, together with an official high school transcript, to the Admissions Office for determination of eligibility for the specific degree or certificate program desired. Upon satisfactory completion of your first year in a full-time college program, you can qualify for a regular high school diploma.





Readmission

Former WACC students who wish to be readmitted must request a re-enrollment application from the Admissions Office. This application must be completed before any admission status can be granted. Students applying for readmission do not have to submit an application fee.

Transfer Students

Students wishing to transfer to WACC should request an application from the Admissions Office. The Williamsport Area Community College will evaluate academic work completed at another institution and, when appropriate, grant credit. A maximum of 30 credit-hours may be transferred toward an associate degree. Individuals who want the College to evaluate courses taken at another institution should complete the following steps.

1. Ask the institution(s) at which the courses were taken to send an official transcript to WACC's Admissions Office.

2. The student must submit to WACC's Admissions Office an official catalog description for each course to be evaluated and a description of the grade codes from each institution from which courses are to be evaluated. These materials must consist of either of the following: the institution's catalog or a photocopy of the course description and the grade codes description taken from the institution's catalog.

3. The student must make a formal written request to WACC's Admissions Office asking that previous work be evaluated.

   After the courses have been evaluated, WACC's Admissions Office will send the student written notification of those courses for which WACC will grant credit. Courses for which WACC grants credit will be listed on the student's transcript after the student successfully completes one semester of academic work on WACC's campus. If the student plans to graduate from WACC, the last semester must be completed here.

Housing

Students are responsible for making their own housing arrangements. The Housing Coordinator, located in the Admissions Office, Klump Rm. 104, maintains a list of available housing facilities for men and women. Prospective students are urged to make arrangements for housing as soon as possible after being admitted. A booklet containing guidelines on obtaining housing is available from the Housing Coordinator, Klump Academic Center, Rm. 104. The College does not sponsor, approve, disapprove, evaluate or supervise the listed facilities. An agreement for renting is solely between the landlord and student.

Health Services

A dispensary, staffed by a registered nurse, is open Monday through Friday from 8 a.m. to 3:30 p.m. First aid, health counseling, and assistance in obtaining private health care is available. Costs for private health care are the student's responsibility.

Insurance

The College's insurance does not cover student accidents. A student sickness and accident policy is available at nominal cost. Applications may be obtained at the dispensary. The College strongly encourages students to carry this insurance.

Facilities

For information regarding College facilities, contact the Admissions Office, Klump Academic Center, Room 104.

Student Retention Data

Persons interested in obtaining data on student retention (number of students who enroll at the College and number who actually complete their program) should contact the Director of Student Records, Klump Academic Center, Room 110.

TUITION AND FEES

Full-Time Students

A full-time student is defined as anyone enrolled in twelve or more credit-hours or an equivalent number of contact-hours per semester.

Application Fee

Applicants for status as full-time students in degree or certificate programs must include a non-refundable $15 Application Fee with their application. You are required to pay this non-refundable fee only once. Applicants for the Practical Nursing program do not pay this fee.

Tuition Deposit

All applicants who have been accepted as full-time degree or certificate students must make a $50 non-refundable Tuition Deposit to hold a class reservation in the first semester for which they have applied.

If you enroll at the designated time, the deposit will be credited to your first semester's tuition. If you do not enroll at the designated time, the deposit is non-refundable and can not be carried forward to another semester.

Tuition and Related Fees—1978-79**—Per Semester

Tuition and related fees are governed by your area of residence. The four categories of residence and the tuition and fees for each are:

1. **WACC Sponsoring School District**

   If you reside in a school district which sponsors The Williamsport Area Community College, you must have the secretary of your local school board complete a Certificate of Sponsorship to be eligible for Sponsoring School District tuition rates. The form should be mailed to the Student Records Office after you have been accepted and as soon as possible prior to registration. (Sponsor School Districts are listed on page 2 of this Catalog).

	FULL-TIME	PART-TIME*
Tuition	$330.00	$27.50
Service Fee	none	none
Activity Fee	$ 15.00	none
TOTAL	$345.00	$27.50*

**Tuition and Fees are subject to change without notice.

2. **Pennsylvania School District Sponsoring Another Community College**

   If you reside in a school district which sponsors another Pennsylvania Community College, you must obtain permission, IN WRITING, from the Board of Trustees of that particular institution to qualify for Sponsoring School District tuition and fees. If you do not obtain permission, you will be charged the same tuition and fees as Non-Sponsor students.

	FULL-TIME	PART-TIME*
Tuition	$330.00	$27.50
Service Fee	$ 92.00	$ 8.00
Activity Fee	$ 15.00	none
TOTAL	$437.00	$35.50*

3. **Non-Sponsoring Pennsylvania School District**

   If you reside in a Pennsylvania school district which does not sponsor a Pennsylvania Community College, you will pay the following tuition and fees:

	FULL-TIME	PART-TIME*
Tuition	$660.00	$55.00
Service Fee	$ 92.00	$ 8.00
Activity Fee	$ 15.00	none
TOTAL	$767.00	$63.00*

4. **Out-of-State Resident**

   Out-of-State students will pay the following tuition and fees:

	FULL-TIME	PART-TIME*
Tuition	$ 910.00	$76.00
Service Fee	$ 184.00	$16.00
Activity Fee	$ 15.00	none
TOTAL	$1109.00	$92.00*

*Per semester hour of credit or equivalent.

Deferred Payment

The College shall not knowingly accept a partial payment from any student except as required for tuition deposits, financial aid plans, or within the guidelines established by the Board of Trustees' policy for deferred fee status.

Any student whose fee is in arrears after the first day of classes shall be subject to a $20 deferred processing fee.

Students who are unable to pay tuition and fees in full by the due date, may elect to pay one-half down and pay for the remaining half in two equal installments at 30-day intervals following the beginning of the semester. A $20 processing fee will be charged for this service. Nullification or adjustment of financial aid awards shall not alter the student's obligation to complete installment payments to the College.

Students who fail to meet their financial obligations under this plan shall be administratively withdrawn. Such termination will not cancel the student's financial obligation to the College. Students participating in an installment plan will have their grades and transcripts held until their accounts are settled.

Withdrawals and Refunds

Charges for tuition are refundable upon official withdrawal from the College as explained in the Academic Information section. Application fees, service fees, activity fees, and tuition deposits are not refundable. A "Request for Refund" form can be obtained from the Bursar's Office.

Refunds of tuition will be made according to the following schedule for fall and spring semesters:

Prior to the first day of Classes	100% Refund
First Week of Classes	80% Refund
Second Week of Classes	70% Refund
Third Week of Classes	60% Refund
After Third Week of Classes	No Refund

Books and Supplies

Expenses for books and supplies will vary considerably from program to program. College policy strives to keep your expenses as low as possible by operating the College Bookstore on a low-cost basis. For full-time students the cost can be as high as $100 per semester.

Tools

When you have been accepted for a particular program, the Admissions Office will provide you with an appropriate list of tools which will be used during your course of study. It is recommended that you do not buy any tools or protective clothing for any course before you attend the first class session. Tool costs vary greatly – from $10 the first semester for welding tools to $200 for construction technology equipment. Total first-year tool costs range from $15 for operating room technician students to $260 for construction students. Prospective students should contact the Admissions Office for a list of estimated costs for each program. It should be emphasized that these tools will be your personal property, an investment you will use with pride throughout your career.

Transcripts

There is a charge of $1.00 for each transcript of academic record requested by a student.

Graduation Fee

A graduation fee of $5.00 is assessed each student during the semester prior to graduation to cover the cost of a diploma or certificate.

Veterans Information

The College has been approved for the education and training of veterans. A Veterans' Representative is available at the Student Records Office for counseling and assistance. All veterans must register with the Student Records Office in order to collect G.I. benefits or to initiate action concerning the Veterans' Administration. The Student Records Office maintains a complete supply of forms for such purposes.

Veterans desiring advance payment should file an application for advance payment with the Student Records Office, together with a copy (not the original) of their DD 214, and, if applicable, their marriage certificate and children's birth certificates. This should be filed approximately two months before enrolling. Veterans not desiring advance payment should follow the same procedure, except they may file at the time of registration. Application forms are available at the Student Records Office or from the Veterans Affairs Office in the student's county.

FINANCIAL AID

Recognizing that the cost of education is often greater than the student and his/her family can afford without help, the Financial Aid Office operates to help students obtain financial assistance through a variety of aid programs:

- Grants
- Scholarships
- Loans
- College Work-Study Program
- Veteran's Benefits
- Social Security Benefits
- Vocational Rehabilitation Sponsorship
- Part-Time Employment

Every student is encouraged to thoroughly explore each of the above programs, and to contact the Financial Aid Office for assistance in obtaining and completing applications for aid.

Employment

Students interested in part-time employment other than the College Work-Study program should contact the College Placement Office for further information.

Special Attention

Deadlines

Students who want the fullest consideration for all awards, should have all needed application materials complete and on file in the Financial Aid Office as soon as possible. For the 1979-80 year, for example, completed applications for some forms of aid should be on file by May 1, 1979. Applications received after this date will be processed and students filing late will be considered for aid, but only after other applications received by the deadline have been reviewed and awards made.

An exception to the above deadline is made for the Guaranteed Student Loan Program. Loan applications may be submitted at any time during the year, but should be filed early enough to allow for the 6 to 8 week processing time prior to loan approval and release of funds to the applicant.

Need Analysis Forms

To determine a student's financial eligibility for awards, especially Supplemental Grants and College Work-Study awards, a review of the family financial situation must be completed.

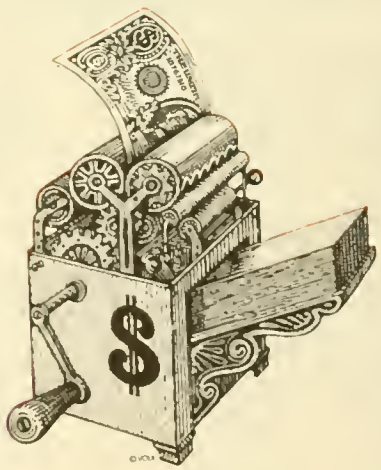
Two national groups assist Financial Aid Offices by offering "need analysis" systems: The American College Testing Corporation (Family Financial Statement) and the College Scholarship Service (Parents Confidential Statement).

At WACC, only the American College Testing Family Financial Statement, or FFS, is used for need analysis purposes. Family Financial Statement forms can be obtained from the Financial Aid Office.

Further Information and Assistance with Applications

Further information about all of the financial aid programs listed above can be obtained from the Financial Aid Office at the address below. The College's Financial Aid Brochure, which provides more information about all of these programs, should be obtained at this address and used as a guide in applying for aid. For information and applications, call, write, or visit:

Financial Aid Office
Williamsport Area Community College
1005 West Third Street
Williamsport, Pennsylvania 17701
(717) 326-3761, Ext. 241



CAMPUS LIFE

The time you will spend outside the classroom will be an important part of your college life. You are encouraged to participate in the social, cultural, educational, vocational, and recreational activities which augment the instructional program.

Athletics

We believe that a well-balanced program of intramural and intercollegiate sports plays an important role in the overall educational program.

At present, the College has basketball (men and women's), wrestling, cross country, golf, field hockey, and tennis teams that compete on an intercollegiate level.

Intramurals provide an opportunity to participate in active competition to improve physical strength and skill, to pursue leisure time activities, and to develop friendships. The Physical Education staff conducts a variety of intramural athletic leagues for men and women. Activities include basketball, bowling, golf, handball, horseshoes, soccer, softball, table tennis, touch football, track and field, volleyball, wrestling, and others.

Cheerleading

This activity is under the direction of a faculty member. Announcements of tryouts are made each fall. Cheerleaders are selected on the basis of skill, poise, personality, and enthusiasm.

College Colors and Nickname

The College colors, gold and burgundy, and the nickname, Wildcats, were selected by popular vote of the students.

Clubs

New student clubs and organizations are constantly being formed. The following clubs are currently recognized on the WACC campus:

Alpha Omega Fellowship
Alpha Pi Delta (Architectural)
Alumni Association
American Welding Society
Artists Unlimited
Automotive Fraternity
Chi Gamma Iota (Veterans)
Cinema Club
Circle K
Communications Club
Food Service Student Organization
Forest Technician Association
Frisbee Club
Gamma Epsilon Tau (Graphic Arts)
Horticulture Technicians Association
Inter-Club Council
Junior American Dental Hygienists Association
Mechanical Engineering Club
Northcentral Pennsylvania Chapter of the Construction Specifications Institute
Outing Club
Phi Beta Lambda (Business)
Plumber's Club
Ski Club
Sports Car Club
Spotlight Staff
Student Government Association
Student Nurses of WACC (SNOW)
Student Society of Manufacturing and Engineering
Varsity Club
Wildcat Band
Yearbook Staff

Publications

The Spotlight is the official College newspaper published at regular intervals throughout the college year.

Montage is the College yearbook which provides a pictorial account of the school year with a focus on the graduating class. Practical experience in writing and editorial work is available through staff membership.

The *Student Handbook* provides information on student events, regulations, and student services.

New Week News is a newsletter issued several times weekly which keeps the student body and faculty informed on current issues, announcements, programs, and activities that affect the College.

Army Reserve Officers Training Corps (ROTC)

WACC students may enroll in the Army's Reserve Officers' Training Corps (ROTC) Program offered through a cross enrollment provision with Bucknell University. All qualified Freshmen and Sophomore men and women are eligible to enroll, without obligation, in the basic course and can compete for full tuition and fees Army ROTC scholarships.

The advance course—the Junior and Senior years—will be taken at a four year institution after the student transfers. Veterans of enlisted service with any of the Armed Forces may qualify for a special advanced course program leading directly to a commission in the Pennsylvania Army National Guard upon graduation from WACC or a commission on army active duty after completion of undergraduate studies elsewhere.

Basic course classes are currently taught at Lycoming College in Williamsport. Advanced course subjects are taught in Lewisburg at Bucknell University and at Bloomsburg State College in Bloomsburg.

Successful completion of Army ROTC will be entered upon the student's permanent academic record but WACC will not grant academic credit.

For additional information on the Army ROTC program contact WACC's Veterans Specialist in the Student Records Office.

Social and Cultural Events

The Student Government Association sponsors dances, Fall and Spring Weekend events, plus other social and cultural events.

Student Government

The Student Government Association is the student governing body of the College. Its purpose is to provide maximum opportunity through a democratic, representative organization for students to promote the interests of the students and of the College. It functions within a constitution originated by the students.

Wildcat Band

The Wildcat Band is a student musical group organized to play for athletic activities and campus and community events. All interested students are urged to participate.

STUDENT AND CAREER DEVELOPMENT SERVICES

Orientation

Prospective students at WACC participate in an orientation program designed to provide positive feelings about the College and to introduce them to the college community and its various services and activities. Students are placed in appropriate academic courses and registered for their first semester. This process aids the student in becoming aware of the College community and promotes involvement in various activities.

Counseling Center

The Counseling Center is available to help students with personal, academic, and career problems.
Advisors: Each student is assigned an advisor who will assist in setting up a schedule of courses. The advisor is usually an instructor in the student's program area.
Counselors: Counselors are available to aid the student in the resolution of many types of problems. Such problems may involve social, emotional, vocational, and personal concerns. The student is the focal point of the process. Any need which is perceived by the student as important will be viewed in the same way by the counselor.
Ombudsman: Student concerns which are not resolved through normal college channels can be directed to this office. The Ombudsman will investigate exceptional problems, resolve them if possible, or provide the results of his investigation with recommendations to the President of the College for a decision. This office is located in the Counseling Center.

Career Placement

The Placement Office maintains a file of full and part-time employment opportunities and provides employment counseling. These facilities are designed to aid the graduating student seeking employment, alumni interested in career and employment information, and students who want to work part-time while attending school.

This Office also publishes a graduate placement report each year. The report shows the number of students, by program, who have obtained jobs and the average salaries of graduates one year after graduation. Enrolled or prospective students and other interested persons may review this report in the Office of Student Activities and Placement, Klump Academic Center, Room 207.

College Transfer Placement

The Career Development Center will provide assistance to students who need advice in transferring to other educational institutions.

Vocational Diagnostic Program

Making career decisions can be difficult and confusing. The Vocational Diagnostic Program offers students a method by which they can obtain more information about themselves and their abilities. It entails testing, counseling, and actual job trials. Students are given maximum exposure to those vocational directions they desire to explore. This service is available to both students and non-students. For fees and additional information write or phone:

Vocational Diagnostic Program,
Career Development Center
Williamsport Area Community College
1005 West Third Street
Williamsport, Pennsylvania 17701
(717) 326-3761, Ext. 247

Tot Watch

Supervised Tot Watch services are provided on campus from 8:00 a.m. to 4:00 p.m. during the fall and spring semesters. Students with pre-school children age 2½-5 may use these services for a nominal fee. For regulations and additional information write or phone:

Tot Watch
Williamsport Area Community College
1005 West Third Street
Williamsport, Pennsylvania 17701
(717) 326-3761, Ext. 329

Career Development Center

The Career Development Center is located in Room 210 of the Klump Academic Center. Career Development is a concept which attempts to bring together information, related programs, and counseling to assist students in career decision making. Information, including pamphlets, booklets, film strips and other career library information will be available in the Center for student use. Other services available include programs in skill areas such as self awareness and decision making, career speakers, group and individual counseling, resume writing, interview training, and job search strategies.

ACADEMIC INFORMATION

Classification of Students

Full-Time: A full-time student is one who carries 12 or more credits in an Associate Degree Program or 360 hours or 12 credit equivalents in a Certificate Program. Sixteen hours of lecture/demonstration, or 48 hours of shop/lab equal one credit equivalent.

Part-Time: A degree or certificate candidate who carries less than 12 credits or equivalent certificate hours per semester is enrolled as a part-time student.

Non-Degree: A non-degree student is one who does not go through the formal admissions process and therefore is not enrolled in a degree or certificate program. Such a student is permitted to select courses without regard to degree or certificate requirements.

Special Student: A rehabilitated or handicapped student who cannot perform some of the requirements in certain shop programs is awarded a special certificate. It is not awarded to a student who may have failed to meet the requirements of a certificate program. Prior to entrance to a program it should be determined whether or not a student will receive a special certificate upon completion of that portion of the program which the student is able to carry. The only exception to this ruling will be the student who becomes handicapped while enrolled in a certificate program.

Freshmen: Students who have completed a total of fewer than 24 credits or the equivalent are classified as freshmen.

Sophomores: Students who have completed a total of 24 or more credits or the equivalent are classified as sophomores.

Registration

All students must schedule desired courses each semester during the dates and in the manner prescribed by the College. If your registration is not completed, including payment of all required fees, prior to the beginning of classes, you will not be permitted to attend class.

Credit and Semester-Hour Load

The academic year is divided into two semesters of approximately sixteen weeks each. The normal load per semester is 15 to 18 credit-hours (Associate Degree) or 400-512 hours (Certificate Program). Students should allow an average of at least two hours preparation for each credit-hour of course work.

A student may not enroll for more than 18 credit-hours (Associate) or 538 hours (Certificate) without special permission from the student's Division Director. A student must have earned either a 3.0 cumulative average or a 3.0 average for the previous semester in order to qualify to take a course overload in either the Associate Degree programs or the Certificate programs.

Fees for students enrolling for overload credits: A student enrolled for more than 18 credits or equivalent (possible only upon approval of the student's Division Director) will be charged the current student tuition rate per credit or credit equivalent for each credit over 18. This charge is determined by the student's official place of residence. (See Tuition and Fees.)

Change of Course

After the official registration period is over, the student may make adjustments in his/her schedule through the process of adding and/or dropping courses.

Dropping a Course: The student has the right and opportunity to drop a college course until the end of the third week of classes. (A course dropped in this time period will not appear on the student's transcript). From the fourth week to the final withdrawal date as specified in the College Calendar for that term the student has the right and opportunity to drop a college course with a grade of "W". A student should consult with his/her instructor and advisor prior to making tha decision to drop a course. If the course is dropped beyond the designated period, a grade of "W" or "WF" will be awarded, depending upon the approval of the respective instructor and the Dean. No credit will be given for a "W" grade; however, a "WF" grade affects the student's grade point average in the same manner as an "F". To stop attending a class without officially dropping the course incurs the grade of "F".

Adding a Course: A student may add a course only during the first week of classes (two days in Summer Term) by having his/her advisor complete a "Student Status Change" form.

The approval of the appropriate Division Director(s) must be obtained before a change can be made.

Change of Program

Any students who wish to change from one program of study to another should contact their advisor. The Student Records Office will evaluate all credits already earned for possible transfer to the new program.

Repeating a Course

Students may repeat a course in which they earned a grade of D or F. However, they must improve the grade of the repeated course to affect their cumulative grade-point average, in which case both grades will appear on the permanent record card with the higher grade used in calculating the cumulative grade-point average. If a student repeats a course and earns a second D or F, the second grade and credits will not be used in calculating the cumulative grade-point average.

Cumulative Average Computations for Students Who Re-Enroll at WACC

If a student drops out of The Williamsport Area Community College for a period of at least two academic years and applies for admission and re-enrollment in the same program of study, the previous cumulative average is dropped. However, all previous grades remain on the transcript.

Auditing a Course

Fees for audits will be assessed on the same basis as fees for credit courses. Auditors are not required to prepare lessons or papers or take examinations, nor do they receive credit for the course.

With the consent of the instructor and the Dean for Degree and Certificate Programs, a full-time student may enroll as an auditor in any course that has not exceeded its enrollment quota. A non-degree student (one who is not enrolled in a degree or certificate program) needs the permission of the Dean for Community and Continuing Education and the instructor to become an auditor.

Grading System

The college uses the following system of grading (4.00 basis) to indicate the quality of a student's work:

Grade		Grade Points
A	Superior	4
B	Above Average	3
C	Average	2
D	Below Average	1
F	Failing Work	0
W	Withdrawn	—
WF	Withdrawn Failing	0
I	Incomplete	—
AU	Audit	—
SP	Satisfactory Progress	—

If a student is awarded a letter grade of "I", the instructor will submit a letter with the student's grade card stating what the student must do to complete the work and remove the "I". The instructor will also set a deadline, prior to the end of the semester following the awarding of the Incomplete, for the required work to be completed. Copies of the letter will be sent to the student and his/her advisor. A permanent F will be recorded if the work is not completed within the prescribed time.

SP, Satisfactory Progress, is used for certain students in Developmental Studies courses. SP, Satisfactory Progress, will be awarded if students do not complete all course requirements but do meet the requirements for SP as established in the syllabus for a particular developmental course. Students earning an SP will re-enroll in the same course during the subsequent semester and, upon mastery of all course objectives, will earn a traditional letter grade.

A student's grade-point average is computed by dividing the number of grade points by the total number of credits or certificate hours for which the student has earned a grade of A, B, C, D, F, or WF.

The grade-point average does not include credit granted for: (1) CLEP exams, (2) Advanced Placement Credit, (3) Credits Transferred from another college, (4) Credit for Work/Life Experience, (5) Credits for courses in which the student received a "D" or "F" and which the student repeated and earned a higher grade, (6) Credits previously taken at WACC by a Re-Enrolled student, unless taken in the same program within two years of re-enrollment, (7) Credits transferred from another WACC curriculum unless the transfer is between General Studies and Individual Studies or unless the student earned the credits as a Non-Degree student.

Advanced Placement Credit

Advanced placement at The Williamsport Area Community College is designed to give students who have completed specific competencies prior to entering College the appropriate placement and credit for their accomplishments. The College believes that it has the obligation to place students at the proper educational level to insure success. Students who have completed advanced academic courses in high school, military service, or other education or training institutions and pass appropriate placement examinations will be given advanced placement consideration. Student application for advanced placement credit must be sent to the Office of Admissions no later than the end of the first week of classes after a student officially enrolls in the College. It is recommended that such applications be submitted by March 15 of the year during which the student wishes to enroll.

WACC recognizes skills-training by students at area vocational-technical schools. To verify the degree of skill a student has attained, the College may grant credit on the placement exams or evaluation of previous vocational work. Up to a maximum of 30 credits (academic, shop, or lab) may be granted toward such advanced placement.

Credit by Examination

Students may earn credit by examination through the College Level Examination Program or may challenge any college course by examination. In order to challenge a college course by examination, a student must have completed at least one semester at The Williamsport Area Community College and earned a grade point average of 2.0. Application to take a course by examination should be made in writing to the appropriate Division Director. Approval must then be given by the instructor(s) of the course involved and the Division Director.

If the approval is received, a fee of $25 must be paid at the Bursar's Office prior to each examination.

The examination is prepared, administered (at the time set by the Division Director) and evaluated by the instructor(s) of the course involved. No examination will be prepared or administered until the student presents the $25 receipt.

Credits for course(s) passed by examination will be entered on the student's transcript. Credit given by examination may not be used to remove a D, F, or WF grade. The examination in a specific subject may be taken only once.

Up to a maximum of 30 credits may be earned through credit by examination.

Credit for Work and/or Life Experiences

Many individuals acquire rich academic and technical experiences through working and/or living in a particular situation; students who feel their work or living experiences warrant consideration for academic credit should make application to the respective Division Director or the Dean for Degree and Certificate Programs. The application should include evidence and rationale as to why the credit should be granted.

Up to a maximum of 30 credits may be earned for Credit for Work and/or Life Experiences.

Foreign Studies Program

The Williamsport Area Community College, in cooperation with other Pennsylvania and New York colleges, offers a limited number of credit and non-credit foreign living, work, and study programs. These programs are designed to promote international understanding and build bridges of friendship among peoples of the world. For more information on this program contact:

Dean for Degree and Certificate Programs
Williamsport Area Community College
1005 West Third Street
Williamsport, PA 17701
Phone (717) 326-3761, Ext. 264

Cooperative Education

Cooperative Education integrates the student's academic study with related work experience in cooperating employer organizations. It is available as an option to qualified students in most programs. The work experience must be approved by the student's respective division and by the Director of Postsecondary Cooperative Education. Co-op may be used to replace or supplement required courses within most programs. Specific information can be obtained directly from the student's academic division or by contacting:

Director of Cooperative Education (Postsecondary)
Williamsport Area Community College
1005 West Third Street
Williamsport, Pennsylvania 17701
Phone (717) 326-3761, Ext. 273

Cross-Registration

The Williamsport Area Community College participates in a cross-registration program with Lycoming College. With the permission of the Dean for Degree and Certificate Programs and the student's Division Director and advisor, a full-time student at WACC may enroll in courses which are not offered by WACC at Lycoming College. Students may obtain additional information on cross-registration procedures from their advisors or the Student Records Office.

Graduation Requirements

Associate Degree

The successful completion of a recommended two-year program of study (as listed in this Catalog) at The Williamsport Area Community College leads to an Associate of Applied Science, an Associate of Arts, or an Associate of Applied Arts Degree. To be eligible for an Associate Degree from The Williamsport Area Community College, the student is expected to satisfy the following:

a. Complete a recommended program of study as set forth in this Catalog. Students may substitute courses with prior written permission of the appropriate Division Director and the Dean for Degree and Certificate Programs.
b. Complete a minimum of 30 credits, including the last semester, in courses offered by The Williamsport Area Community College. Credits earned by Advanced Placement, Credit by Examination, or Life Experience may be included in the 30-credit minimum.
c. Earn at least a C average (2.00 cumulative grade-point average).
d. Satisfy health and physical education requirements as stated in a student's curriculum. A student may receive a waiver from physical education based upon the following considerations:
    1. Age - A student must be 27 years of age or over in order to obtain a waiver.
    2. Military Service - The requirement may be waived if the student was on active duty in the Armed Services of the United States for a minimum of at least one year.
    3. Physical or Medical Reasons - The requirement may be waived because of physical or medical reasons. (Student must have a statement from a medical doctor stating explicitly the reason for the waiver.)
e. Fulfill all financial obligations to the College.

Certificates

Certificates will be awarded for the satisfactory completion of a specific program of study as listed in this Catalog. To be eligible for a Certificate from The Williamsport Area Community College, the student is expected to satisfy the following:

a. Complete a recommended program of study as set forth in this Catalog. Students may substitute courses with prior written permission of the appropriate Division Director and the Dean for Degree and Certificate Programs.
b. Complete at least half of the hours, including the last semester, in courses offered by the College. This includes credit received for Advanced Placement, Credit by Examination, or Life Experience.
c. Earn at least a C average (2.00 cumulative grade-point average).
d. Fulfill all financial obligations to the College.

Additional Information

If after completing the final semester, the student lacks some credits or hours required for a degree or certificate, he/she may, with prior approval of the appropriate Division Director and the Dean, be permitted to take up to six semester credit hours from another college to fulfill requirements for a degree or certificate from The Williamsport Area Community College. Only grades of "C" or better are acceptable for such transfer credit.

Note: In order to graduate a student must report to the Student Records Office and complete a "Petition for Graduation" form during the first five weeks of classes of the semester in which the student intends to graduate. If this form is not submitted, the student's name will not appear on the Graduation Program. In addition, *the student's transcript will state that the student has been terminated,* rather than graduated. The entire summer session is considered as one semester.

Grade Reports

The College will notify, by mail, all students who are making unsatisfactory progress (D or F) in any course at mid-semester. Students who receive such mid-term grades should immediately consult with their instructors and faculty advisor in an effort to improve the quality of their work. Final semester grades will be mailed after the end of the semester or summer session. To protect the confidentiality of the student's record, no grades will be given over the phone.

The Dean's Honor List

The honor list is announced by the Dean at the completion of each semester. The list will include only those full-time students who have a semester grade-point average of 3.30 or better.

Withdrawal from College

If a student finds it necessary to withdraw from the College for any reason, the student must:

1. Officially withdraw by reporting to his/her advisor and the Counseling Office to obtain and complete the necessary withdrawal forms.
2. Satisfactorily account for all property issued by the College.
3. Settle all outstanding College obligations.

Students who do not officially withdraw from the College in the prescribed manner will receive the grade of "W" or "WF" in all courses.

No refunds will be issued unless a student completes the necessary steps and initiates them within the proper time frame. (See page 11 for dates for withdrawals and refunds.)

Student Conduct

On admission to The Williamsport Area Community College you accept unqualified commitment to conduct yourself at all times, both on and off the campus, in a responsible manner which conforms with the generally accepted standard of adult behavior. It is expected that you will show courtesy and respect for the administrative officers, faculty, and employees in your personal contacts. You must also understand and accept the necessity for various College regulations and comply with the directives of those authorized to enforce the regulations. If you conduct yourself in a manner contrary to the best interests of the College you will be subject to such penalties as the circumstances justify, including suspension or expulsion. Additional information regarding student conduct on campus and student judicial procedures is available in the Student Handbook.

A student may be suspended or dismissed for improper conduct, failure to comply with College regulations, academic dishonesty, habitual absences, lack of effort and interest, possession of, or being under the influence of, alcoholic beverages or illegal drugs, or under other circumstances as determined by the Board of Trustees.

In all cases where academic dishonesty is established, the student may be dropped from the course with a grade of F. For a second offense, the student may be dismissed from the College. In a case involving a question of academic dishonesty, the professor in whose class the incident is alleged to have occurred will consult with the appropriate Division Director regarding disciplinary action.

Attendance Regulations

Regular and prompt attendance at all classes and at scheduled conferences with instructors is expected of all students. All work missed by reason of absence, regardless of the cause, must be made up to the satisfaction of the instructor. Students who know that they will be absent are expected to get assignments from instructors in advance so that the necessary work will be completed before the student leaves, or immediately upon his/her return. This applies to absences for college activity trips as well as absences for other reasons. In all cases of anticipated absence, students should confer with their instructors in advance whenever possible.

Academic Probation

Any degree or certificate candidate whose cumulative grade-point average is below 2.00 will be placed on academic probation. A student on probation may be required to report to the Counseling Office for special counseling before being allowed to register for classes the following semester. A student may be dropped from the College unless the following grade-point average is earned:

Beginning of:	Cumulative Grade-Point Average
Second Semester	1.50
Third Semester	1.80
Fourth Semester	1.90

Students are encouraged to seek consultation on academic matters with their advisor or a college counselor.

Final Examinations

Final examinations are scheduled at designated times at the end of each semester. A student who is absent from a final examination without good reason is subject to a failing grade.

COMMUNITY EDUCATION

Community Education is one of the major functions of The Williamsport Area Community College. The Community Education Center is an integral part of the College, designed to extend the resources of the College to the community. Its purpose is: 1. to provide low-cost lifetime learning opportunities, cultural and personal enrichment, recreation and career training or up-grading for adults from the college community; 2. to provide special training, employee up-grading, or other educational programs on or off-campus designed to meet the needs of community organizations, professional associations, business, industry, institutions, prisons, and government agencies.

The Community Education Center, in addition to offering short, hourly mini-courses and career courses, provides special programs and services through workshops, lectures, seminars, contract programs, consultations and conferences to meet the immediate needs of the communities served.

Some typical illustrations of the services available are: Manpower Training programs, prison, police, fire, in-plant, and other special career programs; and such courses as homemaking, business, computer science, recreational and cultural, technical and trade, personal development, and current issues and topics.

Information concerning such course and program offerings is available prior to each term or at the beginning of a new program.

For additional information contact the Dean for Community & Continuing Education, (717) 326-3761, Ext. 231.

Community Education Tuition

Community Education students normally pay $.50 per hour for Community Education courses and programs. Special rates and lab fees will be charged when appropriate. Sponsor districts are not charged for these courses.

DEVELOPMENTAL STUDIES PROGRAM

The Developmental Studies program is designed to serve a variety of students: those who lack academic skills and requisites for the curriculum of their choice; the "non-traditional" student: unemployed adults, adults returning to school after a number of years of absence, high school dropouts, veterans; those students referred to the program by instructors who recognize a need for one or more of the program's services; those who require assistance and solicit the program services on a "walk-in" basis. The program consists of courses in academic skills, human development, study skills, and career planning.

Students may enter the entire program or part of it as the result of counseling, placement tests, academic record, or personal choice. While in the program, students will take courses in their curriculum. One strength of the program is the frequent contact with advisors who assist the student with course selection, problem solving, decision making, career planning.

Classwork is designed to promote a successful teaching-learning atmosphere. Varied learning strategies, individualized and self-paced instruction, small group sessions, tutorial and media support are integrated into the course work.

College Opportunity Programming (COPing)

This program funded under the Equal Education Opportunity legislation, Act 101, serves students who are academically and financially disadvantaged. COPing students enroll in Developmental Studies courses; in addition they receive counseling services and tutorial services, participate in cultural and social activities and in a pre-college activity, and are assisted in developing a financial aid package designed to provide them adequate support.

For additional information on either the Developmental Studies Program or College Opportunity Programming, contact:

Coordinator of Developmental Studies & Act 101
Williamsport Area Community College
1005 West Third Street
Williamsport, PA 17701
(717) 326-3761, Ext. 242

ASSOCIATE DEGREES

You can earn one of three Associate degrees at The Williamsport Area Community College. All of them can be used to help you gain immediate employment or to serve as the base from which you can pursue further studies. Flexibility in each degree program gives you maximum freedom in meeting your individual needs.

The Associate of Applied Science (AAS) degree program emphasizes technical career skills. These programs may be transferred to a four-year program of study, as some four-year colleges are accepting AAS degrees in full or partial transfer credit toward a bachelor's degree.

The Associate of Arts (AA) is a program primarily designed to parallel the first two years of education at a four-year college. Credits earned can usually be transferred toward the first two years of a bachelor's degree.

The Associate of Applied Arts (AAA) is offered in Broadcasting, Journalism, and Advertising Art. These programs offer students the opportunity of gaining technical and professional skills and/or securing the background to transfer to a four-year college.

Associate of Applied Science

If you want to gain knowledge, proficiency, and skills in a particular technical, career, or vocational area, you can earn an Associate of Applied Science degree. Each particular program has prescribed courses that you must complete in order to graduate.

The College offers Associate of Applied Science (AAS) degrees in the following areas:

Building Technologies
- Building Technology & Estimating*
- Carpentry & Building Construction Technology

Business & Computer Science
- Accounting
- Business Management
- Computer Science Technology
- Industrial Technology
- Marketing/Merchandising
- Secretarial Science
  - Executive
  - Legal
  - Medical

Earth Science
- Agribusiness
- Floriculture—
  - Ornamental Horticulture Technology
- Forest Technology
- Nursery Management—
  - Ornamental Horticulture Technology

Electrical/Electronics
- Electrical Technology
- Electronics Program*
- Electronics Technology

Engineering & Design Technologies
- Architectural Technology
- Civil Engineering Technology
- Engineering Drafting Technology
- Graphic Arts
- Machine Tool Technology
- Technical Illustration
- Tool Design Technology

Mathematics, Science, and Allied Health
- Dental Hygiene
- Dental Laboratory Technician*
- Dietetic Technician
- Food & Hospitality Management
- Food Management*
- Radiologic Technology

Transportation Technologies
- Automotive Technology

*Given at Lewisburg Penitentiary only

For Graduation Requirements see page 19.

Associate of Arts
(College and University Transfer)

The General Studies and Individual Studies Program

The Williamsport Area Community College offers an Associate of Arts (AA) degree in both a General Studies Program and an Individual Studies Program. Both programs are designed to provide the student with the opportunity to:

1. Participate in a planned educational program of studies leading to an Associate Degree.

2. Elect, from a broad spectrum of offerings, those courses most appropriate to individual academic and career goals.

3. Interact on a regular basis with the College staff and fellow students in the cultural, social, and recreational activities that provide for intellectual growth and emotional maturity.

4. Demonstrate a mastery of basic quantitative concepts and skills.

5. Display in written and oral presentations the ability to communicate clearly, correctly, and convincingly.

The General Studies Program is designed primarily to be transferable into four-year college degree programs and to provide the opportunity to begin academic course work leading to many professional careers. Specific curriculum guides have been developed for the following career areas:

Business Administration
Communications Emphasis
Education Emphasis
Math-Science Emphasis
Pre-Law Emphasis
Pre-Medical Emphasis
Pre-Theological Emphasis
Social Work Emphasis

The Individual Studies program provides maximum flexibility in designing an associate degree program to meet individual student needs. The Individual Studies program also offers students waiting for an opening in a particular career-oriented program the opportunity to begin work leading to a degree by taking appropriate available courses.

Associate of Applied Arts

If you want to gain knowledge, proficiency, and skills in a particular vocational or career area, you can earn an Associate of Applied Arts degree. Each particular program has prescribed courses that you must complete in order to graduate.

The College offers Associate of Applied Arts (AAA) degrees in the following areas:

Communications, Humanities, and Social Sciences
Broadcasting
Journalism

Engineering and Design Technologies
Advertising Art

For Graduation Requirements see page 19.

CERTIFICATE IN SPECIAL FIELD OF STUDY

These programs are occupational in nature and are heavily skills oriented. They are not primarily designed for transfer but in certain cases can be transferred to some colleges. Certificate programs require the equivalent of two to four semesters of full-time course work in which you must maintain a 2.00 grade-point average.

A new feature of these Certificate in Special Field of Study programs is the Optional Elective. As the name implies, an Optional Elective can be chosen to broaden the basic academic work required of all college students. You are urged to make use of the opportunity to enrich your educational experience.

Certificates are offered in the following areas:

Building Technologies
- Construction Carpentry
- Plumbing and Heating

Business and Computer Science
- Clerical Studies
- Computer Operator

Earth Science
- Service & Operation of Heavy Construction Equipment

Electrical/Electronics
- Electrical Construction
- Office Machine Repair (not offered 78/79)

Engineering & Design Technologies
- Machinist General
- Mechanical Drafting
- Printing
- Sign Painting
- Welding

Mathematics, Science & Allied Health
- Operating Room Technician
- Practical Nursing

Transportation Technologies
- Auto Body Repair
- Automotive Mechanics
- Aviation Maintenance Technician
- Diesel Mechanics

DIVISIONS AND PROGRAMS

BUILDING TECHNOLOGIES
Division Director, George C. Krause

Building Technology & Estimating (BE)*
Carpentry & Building Construction Technology (CB)
Construction Carpentry (CC)
Plumbing and Heating (PL)

BUSINESS & COMPUTER SCIENCE
Division Director, Dr. Donald B. Bergerstock

Accounting (BA)
Business Management (BM)
Clerical Studies (BT)
Computer Operator (CO)
Computer Science Technology (CS)
Industrial Technology (IT)
Marketing/Merchandising (MM)
Secretarial Science (BS):
- Executive
- Legal
- Medical

College & University Transfer Program
- Business Administration

Exam Preparation
- Real Estate

COMMUNICATIONS, HUMANITIES & SOCIAL SCIENCES
Division Director, Dr. Richard Sweeney

Broadcasting (BR)
Journalism (JO)
Service Courses
- Advertising
- Education
- German
- Government
- Philosophy
- Spanish

EARTH SCIENCE
Division Director, Joseph G. Sick

Agribusiness (AG)
Floriculture (FL) (Ornamental Horticulture Technology-OH)
Forest Technology (FR)
Nursery Management (NM) (Ornamental Horticulture Technology-OH)
Service & Operation of Heavy Construction Equipment (SO)

ELECTRICAL/ELECTRONICS
Division Director, Donald O. Young, Sr.

Electrical Construction (EW)
Electrical Technology (EL)
Electronics Program (ES)*
Electronics Technology (ET)
Office Machine Repair (OR) (not offered 78-79)

ENGINEERING & DESIGN TECHNOLOGIES
Division Director, Dr. Paul L. McQuay

Advertising Art (AR)
Architectural Technology (AT)
Civil Engineering Technology (CT)
Engineering Drafting Technology (ED)
Graphic Arts (GA)
Machine Tool Technology (TT)
Machinist General (MG)
Mechanical Drafting (MD)
Printing (GP)
Sign Painting (SP)
Technical Illustration (TI)
Tool Design Technology (TD)
Welding (WE)
Exam Preparation
Engineer In Training

MATHEMATICS, SCIENCE & ALLIED HEALTH
Division Director, Dr. Robert G. Bowers

Dental Hygiene (DH)
Dental Laboratory Technician (DL)*
Dietetic Technician (DT)
Food & Hospitality Management (FH)
Food Service Management (FM)*
Operating Room Technician (OT)
Practical Nursing (NU)
Radiologic Technology (RT)
Service Courses
Environmental Science
Geography
Geology
Medical Terminology

Director, Physical Education, Thomas E. Vargo

Health & Physical Education

TRANSPORTATION TECHNOLOGIES
Division Director, Marlin M. Roush

Auto Body Repair (AB)
Automotive Mechanics (AM)
Automotive Technology (AU)
Aviation Maintenance Technician (AC)
Diesel Mechanics (DM)

COLLEGE & UNIVERSITY TRANSFER PROGRAMS
Dr. Robert G. Bowers
Dr. Richard Sweeney

General Studies
Communications Emphasis
Education Emphasis
Math-Science Emphasis
Pre-Law Emphasis
Pre-Medical Emphasis
Pre-Theological Emphasis
Social Work Emphasis

Individual Studies

COMMUNITY & CONTINUING EDUCATION
Non-Credit Courses & Programs
Business & Industrial Programs
Evening Courses

Director, Summer Sessions & Off-Campus Programs, Thomas E. Vargo

Summer Sessions
Off-Campus Programs & Courses

COOPERATIVE EDUCATION (CED)
Director, William C. Bradshaw

Courses in conjunction with Divisions and Programs

DEVELOPMENTAL STUDIES (RDG)
Coordinator, Veronica M. Muzic

Courses

*Given at Lewisburg Penitentiary only

Accounting (BA)
Associate Degree/Two Years

This program provides a broad business background with specialization in accounting. It begins on the elementary levels of accounting and business and advances to more complex levels.

Types of Jobs: Public, private, government, and corporate accounting, cost accounting, tax consultant, auditor, comptroller.

FIRST SEMESTER

			Credits
ACC	112	Accounting I	3
MGT	110	Principles of Business	3
MGT	111	Business Mathematics	3
SEC	111	Typewriting I	3
ENL	111	English Composition I	3
PED		Physical Education	1
			16

SECOND SEMESTER

			Credits
ACC	122	Accounting II	3
ACC	125	Income Tax Accounting	3
CSC	118	Fundamentals of Computer Science	3
MGT	124	Office Procedures	2
ENL	202	Fundamentals of Speech	3
PED		Physical Education	1
			15

THIRD SEMESTER

			Credits
ACC	231	Cost Accounting	3
ACC	232	Intermediate Accounting I	3
MGT	230	Business Communications	3
MGT	231	Business Law I	3
		Elective-Computer Science	3
		Elective-Social Science	3
			18

FOURTH SEMESTER

			Credits
ACC	244	Intermediate Accounting II	3
ACC	246	Auditing	3
MGT	241	Business Law II	3
ECO	201	Principles of Economics	3
		Elective	3/4
			15/16

PROGRAM OBJECTIVES

The general objective of the Accounting program is to prepare the student for employment in the accounting field – public, private, and government. Alternatives may be to pursue advanced study or to add to the competencies of those currently employed in the field.

The graduate should be able to:

1. identify and apply generally accepted accounting principles.
2. organize, prepare, and interpret financial data and statements.
3. demonstrate skill in effective oral and written communication.
4. use and interpret federal and state income tax laws applicable to the individual and sole proprietor.
5. identify and apply generally accepted auditing standards.
6. identify the legal aspects affecting business.
7. apply computer knowledge and techniques in the preparation and analysis of financial statements and data.
8. apply human relations skills in the business environment.
9. apply general knowledge of the social sciences, and possess an awareness of their effect on our society.
10. identify the need for physical fitness and positive leisure activities.

Advertising Art (AR)
Associate Degree/Two Years

This program prepares students for employment in advertising art and related fields. The program provides skills in drawing, painting, designing, illustrating, coloring, paste-up, rendering, composing, layout, lettering, sketching, and proper use of tools, equipment, and materials. Related courses in journalism, photography, graphic arts, and courses in English, mathematics, and history are included to increase the student's career opportunities. Some art background is desirable, but is not required.

Types of Jobs: Advertising artist, art director, layout artist, renderer, letterer, illustrator; mechanical work, general board work.
*GENERAL ELECTIVES are courses chosen from outside your program of concentration.

FIRST SEMESTER

			Credits
ART	111	Basic Drawing	3
EDT	101	Mechanical Drawing	2
GCO	515	Layout and Design	3
JOU	112	Photography for Newspapers	2
HIS	111	Western Civilization I	3
PED		Physical Education	1
			14

SECOND SEMESTER

			Credits
ART	121	Basic Painting	3
GCO	525	Process Camera	3
ENL	111	English Composition I	3
MTH	101	Introduction to Mathematics I	3
PED		Physical Education	1
		Elective-Humanities/Social Sciences	3
			16

THIRD SEMESTER

			Credits
ART	231	Color and Design	3
ART	232	Lettering and Layout	3
GCO	516	Typographic Composition	3
JOU	232	Editing	3
ENL	202	Fundamentals of Speech	3
			15

FOURTH SEMESTER

			Credits
ART	241	Media and Techniques	3
ART	242	Advertising Design	3
ADV	101	Principles of Advertising	3
GCO	526	Film Assembly and Imposition	3
		Elective	3
			15

PROGRAM OBJECTIVES

The general objective of the program is to prepare the student for employment in the advertising art field or for transfer to a baccalaureate degree program.

A graduate of the Advertising Art program should be able to:

1. demonstrate the manipulative skills necessary to the advertising artist including dexterity with pen, brush and ink, litho pencil, carbon pencil, pastel, airbrush, art aids, and water base pigments.
2. demonstrate product rendering in the following mediums: watercolor, designers colors, retouch grays, wash, pen and ink, scratchboard, litho pencil, carbon pencil, airbrush, benday screens, and other art aids used in preparing mechanicals.
3. draw and sketch product and spot illustrations, the figure, and objects from nature.
4. demonstrate skills in color and design as applied to such variables as mass, color elements, shape, space, movement, time, and organization.
5. use lettering and layout skills, such as outline lettering, old style, modern and sans serif, free hand lettering, italic, brush, type indication and comp lettering.
6. lay out visual material for reproduction or presentation.
7. demonstrate desirable attitudes and work habits including creative thinking, the ability to solve problems, good artistic judgement, industry, cooperation, responsibility, self-reliance, and appreciation for and understanding of past civilizations.
8. demonstrate knowledge of the fundamentals of the trades with which the advertising artist deals, such as printing and publishing, oral and written communications, and advertising.
9. demonstrate an understanding of and respect for the employer-employee relationship, and an awareness of the necessity for delivering worthy service for value received.
10. demonstrate an awareness and appreciation of the interrelationship among production departments and the contributions each makes to the total product or service.
11. communicate clearly, both orally and in writing.
12. demonstrate knowledge of a lifetime sport which will provide recreation and promote physical fitness.
13. demonstrate an understanding of advertising art which is sufficient for entry-level employment and advancement in the field.

Agribusiness (AG)
Associate Degree/Two Years

The program in Agribusiness is designed to prepare men and women for mid-management positions in an agricultural business or to work in production agriculture as a farm owner or supervisor.

Types of Jobs: Farm operator or manager; farm supply and garden center; feed, seed, and fertilizer sales; farm credit, financing, and insurance.
*GENERAL ELECTIVES are courses chosen from outside your program of concentration.

FIRST SEMESTER

			Credits
AGB	111	Introduction to Agricultural Business	4
AGB	112	Soils, Fertilizer, and Agricultural Chemicals	4
MGT	110	Principles of Business	3
ENL	111	English Composition I	3
PED		Physical Education	1
			15

SECOND SEMESTER

			Credits
AGB	123	Field & Forage Crop Production	3
AGB	124	Agricultural Financing	3
AGB	125	Dairy Production	3
MGT	111	Business Mathematics	3
MGT	230	Business Communications	3
PED		Physical Education	1
			16

THIRD SEMESTER

			Credits
AGB	236	Animal Production	4
AGB	237	Special Topics in Agribusiness	3
ACC	112	Accounting I	3
ENL	202	Fundamentals of Speech	3
		Elective-General*	3
			16

FOURTH SEMESTER

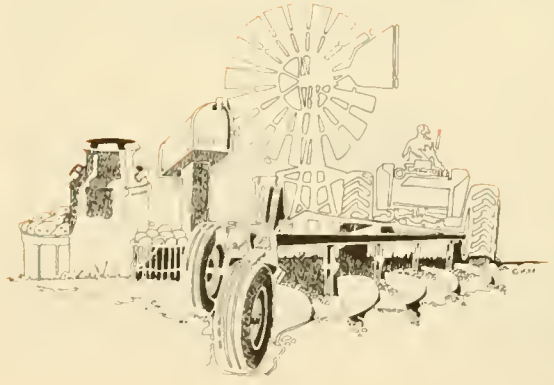
			Credits
AGB	240	Internship/Co-op	3
AGB	248	Farm Management	3
AGB	249	Agricultural Sales and Service	3
ECO	201	Principles of Economics	3
		Elective-General*	3
			15

PROGRAM OBJECTIVES

The general objective of the program is to prepare the student to obtain employment in agriculture-related businesses or to improve and add to the competencies of the person who will return to the home farm.

A graduate of Agribusiness should be able to:

1. write clear, concise, legible, and accurate technical reports using proper language structure.
2. identify oral communication skills, speak logically, and use various types of communication techniques to promote sales and service and to develop leadership.
3. interpret farm records and the principles of management and economics as they apply to the farm, including the principles of financing as applied to agribusiness and the ability to read and interpret computer print-outs.
4. analyze procedures involved in breeding, feeding, housing, and managing a dairy herd.
5. describe the physical and biological properties of soil, the use and general effects of fertilizer, and the proper use of chemicals in crop and livestock production.
6. identify various types of business organizations with regard to planning, organizing, financing, marketing, and other business principles.
7. describe the principles of breeding, feeding, marketing, and management of beef, swine, sheep, and poultry.
8. explain the marketing of agricultural products including the psychology of selling, pricing, and the importance of customer service.
9. demonstrate an attitude of responsibility toward agribusiness and the world of work.
10. utilize appropriate mathematical skills and competencies to solve applied problems in agribusiness.
11. demonstrate an appreciation of physical fitness and lifelong recreational activities.



Architectural Technology (AT)
Associate Degree/Two Years

This program provides instruction in architectural drafting principles and practices and in creating residential and commercial working drawings. It includes design fundamentals, structural calculations and site planning.

Types of Jobs: Architectural drafting, estimator, detailer, or specification writer in private practice, corporate departments, public bureaus, construction firms, landscape architecture firms, and engineering fields.
High School Subjects Required: Two years of algebra, one year of science. For exceptions, see pg. 7.

FIRST SEMESTER

			Credits
ARC	111	Statics	3
ARC	112	Architectural Graphics I	4
ARC	113	Introduction to Historic Theory in Architecture	3
ARC	114	Building Materials & Methods I	3
MTH	103	College Algebra	
		or	3/4
MTH	238	Calculus I	
PED		Physical Education	1
			17/18

SECOND SEMESTER

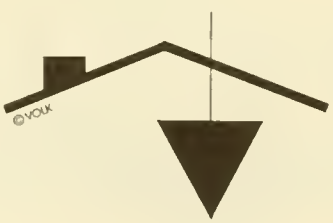
			Credits
ARC	121	Structures I	2
ARC	122	Architectural Graphics II	3
ARC	123	Architectural Working Drawings	2
ARC	124	Design I	4
ENL	111	English Composition I	3
MTH	104	College Trigonometry	
		or	3/4
MTH	248	Calculus II	
			17/18

THIRD SEMESTER

			Credits
ARC	231	Structures II	2
ARC	232	Building Materials & Methods II	3
ARC	233	Building Equipment I	3
ARC	234	Site Planning	3
ARC	235	Design II	4
ENL	121	English Composition II	3
			18

FOURTH SEMESTER

			Credits
ARC	241	Structures III	2
ARC	242	Building Equipment II	3
ARC	243	Design III	4
ARC	244	Professional Administration & Contract Documents	3
ARC	245	Seminar	3
PED		Physical Education	1
			16



PROGRAM OBJECTIVES

The general objective of the Architectural Technology program is to provide students with the academic and practical educational experience which will prepare them for a variety of career options. Entry-level skills are developed to prepare the student for employment as an architectural technician. The program may also serve as a basis for higher education in such disciplines as architecture, architectural engineering, landscape architecture, urban design and planning, interior design and building construction.

A graduate of the Architectural Technology program should be able to:

1. demonstrate understanding and appreciation of visual art.
2. demonstrate an attitude of responsibility toward the wise and efficient use of our natural resources.
3. illustrate mastery of architectural presentations including drawing, drafting, and model building.
4. demonstrate a sense of building structure, materials, and methods of construction.
5. perform first order structural calculations using wood, steel, and concrete.
6. demonstrate working knowledge of the environmental systems of structures including design competency.
7. explain professional practice and administration.
8. demonstrate basic knowledge of architectural design and planning.
9. apply working knowledge of site engineering and design.
10. demonstrate proficiency in architectural terminology and communications, including oral, written, and visual.
11. utilize appropriate mathematical competencies necessary for job performance and for the development of visualization skills and logical thought processes.
12. demonstrate knowledge of a lifetime sport which will provide recreation and promote physical fitness.

Auto Body Repair (AB)
Certificate/Two Years

The student masters trade tools and equipment through the study of theory and practical experience in sheet metal repairs, sanding, and application of fillers, primers, and color coatings. Shrinking, stretching, welding, panel installation, interior trim, and glass replacement are also stressed. The student gains skills in frame and steering alignment as well as damage estimating and repair.

Types of Jobs: Shop assignments to any of the areas mentioned: insurance companies, repair shops, dealerships, self-employment.

FIRST SEMESTER

			Hours
ABC	711	Auto Body Repair I (8 weeks)	192
ABC	712	Auto Body Repair II (8 weeks)	192
MTH	710	Technical Mathematics I	48
			432

SECOND SEMESTER

			Hours
ABC	721	Auto Body Repair III (8 weeks)	192
ABC	722	Auto Body Repair IV (8 weeks)	192
ENL	711	Communications	48
			432

THIRD SEMESTER

			Hours
ABC	831	Auto Body Repair V (8 weeks)	192
ABC	832	Auto Body Repair VI (8 weeks)	192
		Optional Elective	0/48
			384/432

FOURTH SEMESTER

			Hours
ABC	841	Auto Body Repair VII (8 weeks)	192
ABC	842	Auto Body Repair VIII (8 weeks)	192
		Optional Elective	0/48
			384/432

PROGRAM OBJECTIVES

The general goal of this program is to prepare the student for a successful career in the field of auto body repair, collision appraisal and shop management.

A graduate of the Auto Body Repair program should be able to:

1. write clear, concise, legible, and accurate repair orders, estimates, technical reports, and business letters.
2. demonstrate skill in basic communication and the ability to speak logically; use types of oral communication techniques to promote sales and service and to develop leadership.
3. maintain service records and customer files.
4. identify the problems of an auto body repair shop, including personnel, equipment, and customer relations.
5. diagnose common paint problems and make necessary repairs.
6. make automotive collision repairs to sheet metal components.
7. make repairs to automotive glass, upholstering, trim and related components.
8. demonstrate both efficiency and quality in the field of automotive refinishing.
9. diagnose and repair common malfunctions related to mechanical parts, other than sheet metal, damaged by collision.
10. demonstrate an attitude of responsibility toward auto body repair and the world of work.
11. use elementary mathematical operations (addition, subtraction, multiplication, division) including decimals, fractions, and conversions as they apply to auto body repair.

Automotive Mechanics (AM)
Certificate/Two Years

Theory and manipulative skills, as practiced with modern tools and equipment, are stressed in a program which teaches the student to service and repair light commercial and passenger vehicles. Proficiency is gained in working with power train, steering, brakes, ignition, carburetion, engines, and electrical components and assemblies.

Types of Jobs: General auto mechanic in a dealership, independent garage, fleet operation, service station, self-employed.

FIRST SEMESTER

			Hours
AMC	711	Automotive Mechanics I	192
AMC	712	Automotive Mechanics II	192
MTH	710	Technical Mathematics I	48
			432

SECOND SEMESTER

			Hours
AMC	721	Automotive Mechanics III	192
AMC	722	Automotive Mechanics IV	192
ENL	711	Communications	48
			432

THIRD SEMESTER

			Hours
AMC	831	Automotive Mechanics V (8 weeks)	192
AMC	832	Automotive Mechanics VI (8 weeks)	192
		Optional Elective	0/48
			384/432

FOURTH SEMESTER

			Hours
AMC	841	Automotive Mechanics VII (8 weeks)	192
AMC	842	Automotive Mechanics VIII (8 weeks)	192
		Optional Elective	0/48
			384/432

PROGRAM OBJECTIVES

The goal of this program is to prepare the student for a successful career as an automotive mechanic in a dealership, independent garage, or a self-operated business. The program also provides the academic and practical educational experience which enables students to pass the Pennsylvania Vehicle Safety Inspection written exam for certification as a vehicle safety inspection mechanic.

A graduate of the Automotive Mechanics program should be able to:

1. diagnose and repair common malfunctions of systems and components on popular makes of automobiles.

2. diagnose and repair malfunctions and wear patterns in any two of the following specialized automotive service areas:
   a. engines
   b. automatic transmissions
   c. wheel alignment/steering/suspension
   d. air conditioning

3. make tests, adjustments, and repairs to engine electrical, fuel, and emission control components.

4. interpret wiring diagrams, test, and make repairs to starting, charging, lighting, and accessory systems of vehicles.

5. use elementary math operations (addition, subtraction, multiplication, division) including decimals, fractions, and conversions as they apply to automotive mechanics.

6. demonstrate the ability to write letters of application, resumes, memos, work orders and reports; recognize correct forms and styles of the above.

7. demonstrate an attitude of responsibility toward the automotive service and manufacturing industry and the world of work.

Automotive Technology (AU)
Associate Degree/Two Years

This program presents the advanced theory of operation of automotive systems and components. The theory of operating principles is applied to diagnose both real and hypothetical malfunctions. Service, repair and test procedures with modern equipment and special tools are emphasized. Service specialization and business management may be elected. (On completion of this program the student may transfer to a four-year institution).

Types of Jobs: Dealership service specialist, assistant service manager, skilled jobs in the automotive manufacturing industry, service equipment representative, rebuilding shop assembler, repair shop operator, parts department manager.
Required High School Subjects: One course in algebra for career students, two years of algebra for transfer students. For exception, see pg 7.
*GENERAL ELECTIVES are courses chosen from outside your program of concentration.

FIRST SEMESTER

		Credits
AMD 111	Fuel & Electrical Systems	7
AMD 112	Engines	7
PED	Physical Education	1
	Elective-Math**	3
		18

SECOND SEMESTER

		Credits
AMD 121	Power Train	7
EDT 101	Mechanical Drawing	2
ENL 111	English Composition I	3
PED	Physical Education	1
	Elective-Math***	3
		16

THIRD SEMESTER

		Credits
AMD 231	Brakes, Chassis, and Suspension	7
ENL 201	Technical Writing	3
MGT 110	Principles of Business	3
PHS 700	Physics Survey	3
		16

FOURTH SEMESTER

		Credits
AMD 241	General Repair Service	3
AMD 242	State Inspection Repairs	3
AMD 243	Service Specialty	7
	Elective-General*	3
		16

NOTE: Transfer students who are seeking a four-year degree may select alternate courses upon approval of the Dean.

**For two-year (career) students:
MTH 105 Intermediate Algebra

For transfer students:
MTH 103 College Algebra
MTH 104 College Trigonometry
MTH 107 Applied Calculus
MTH 238 Calculus I

***For two-year (career) students:
MGT 111 Business Mathematics
MTH 100 Technical Mathematics II

For transfer students:
MTH 104 College Trigonometry
MTH 107 Applied Calculus
MTH 248 Calculus II

PROGRAM OBJECTIVES

The general goal of this program is to prepare the student for a successful career in the fields of automotive service technology, parts and service management, or automotive engineering technology. The program also provides the academic and practical educational experiences which enable students to pass a written exam for mechanic's certification, such as the National Institute for Automotive Service Excellence, and to pass the Pennsylvania Vehicle Safety Inspection written exam for certification as a vehicle safety inspection mechanic.

A graduate of Automotive Technology should be able to:

1. diagnose and repair common malfunctions of systems and components on popular makes of automobiles.
2. diagnose and repair malfunctions and wear patterns in any two of the following specialized automotive service areas:
   a. engines
   b. automatic transmission
   c. wheel alignment/steering/suspension
   d. air conditioning
3. relate basic laws of physics and principles of science to automotive systems and components in a manner which leads to trouble-diagnosis or product development.
4. record engineering data in mathematical terms and solve basic problems utilizing technical mathematics, elementary algebra, and trigonometry.
5. interpret engineering data given in the form of numerical quantification such as graphs or charts, algebraic expressions, or proportional relationships.
6. create and interpret fundamental engineering drawings.
7. identify the problems of an automotive service shop, including personnel, equipment, shop layout, and customer relations.
8. maintain automotive service records, dealership warranty procedures, and customer files.
9. demonstrate skill in basic oral communication and the ability to speak logically; use various types of oral communication techniques to promote sales and service and to develop leadership.
10. write clear, concise, and accurate repair orders, technical reports, service advertising copy, business memoranda, and business letters.
11. explain the concepts of capital investment, the profit motive, supply and demand, and legal business structures.
12. demonstrate knowledge of a lifetime sport which will provide recreation and promote physical fitness.
13. demonstrate an attitude of responsibility toward the automotive service and manufacturing industry and the world of work.

Aviation Maintenance Technician (AC)
Certificate/Two Years

In preparing to become an aircraft and powerplant maintenance technician, the student learns the theories of, and gains practical skills in such areas as aircraft powerplant maintenance and troubleshooting. This program is approved and licensed by the Federal Aviation Administration, and as a graduate the student will be qualified to take the examinations for the Airframe and Powerplant Maintenance Certificate.

Types of Jobs Maintenance technician for airlines, fixed base operators, and manufacturer's services

FIRST SEMESTER

			Hours
APC	711	General Airframe & Powerplant	328
APC	712	Powerplant I	80
EDT	104	Aircraft Drawings	64
MTH	715	General Aviation Mathematics	48
			520

SECOND SEMESTER

			Hours
APC	721	Powerplant II	480
			480

THIRD SEMESTER

			Hours
APC	831	Powerplant III	210
APC	832	Airframe I	270
			480

FOURTH SEMESTER

			Hours
APC	841	Airframe II	480
			480

PROGRAM OBJECTIVES

The objective of the Aviation Maintenance Technician program is to prepare the student to pass the written, oral, and practical Federal Aviation Administration Examination, and to master skills necessary for employment in aviation maintenance.

A graduate of the Aviation Maintenance Technician program should be able to:

1. prepare FAA Maintenance forms accurately.
2. locate specific information in various aviation publications.
3. read and comprehend varied aircraft and powerplant service publications.
4. recognize need for accuracy and thoroughness in work.
5. demonstrate professional inspection and operational skills.
6. observe and practice safety habits at all times.
7. demonstrate correct use of basic hand tools, special tools, and required testing equipment.
8. use mathematics and theory in aviation maintenance activities.
9. list, define, and correctly use aviation maintenance terminology.
10. maintain high professional standards in work as established by instruction and the FAA.

SECOND SEMESTER

			Credits
BRC	112	Basic Electronics & FCC Licensing	3
BRC	121	News Writing for Broadcasters	3
BRC	122	In-Service Training I	2
GOV	241	State & Local Government	3
SOC	111	Introduction to Sociology	3
PED		Physical Education	1
			15

THIRD SEMESTER

			Credits
BRC	231	Advanced Announcing	3
BRC	232	Radio Programming	3
BRC	241	In-Service Training II	2
ECO	201	Principles of Economics	3
PED		Physical Education	1
		Elective-General*	3
			15

FOURTH SEMESTER

			Credits
BRC	242	Station Management & Community Responsibility	3
BRC	243	In-Service Training III	2
ADV	101	Principles of Advertising	3
ESC	100	Environmental Science	3
PSY	111	General Psychology	3
		Elective-General*	3
			17

Broadcasting (BR)
Associate Degree/Two Years

Announcers and newswriters from nearby radio stations will assist the faculty in teaching modern broadcasting techniques using the College's radio studio and television system. Background courses in history, government, economics, sociology, and psychology are included in the program.

Types of Jobs: Radio or television announcer, disc jockey, news commentator, public relations assistant, advertising copywriter.
*GENERAL ELECTIVES are courses chosen from outside your program of concentration.

FIRST SEMESTER

			Credits
BRC	111	Introduction to Announcing	3
ENL	111	English Composition I	3
ENL	202	Fundamentals of Speech	3
GOV	231	American Government-National	3
SEC	111	Typewriting I	3
			15

PROGRAM OBJECTIVES

The general objective of the Broadcasting program is to prepare the student for a position in the radio broadcasting industry in a small or middle size operation. Students are also prepared to transfer to a baccalaureate degree program.

The graduate of the Broadcasting program should be able to:

1. demonstrate proficiency in selecting and announcing music from records and be familiar with several kinds of recorded musical forms.
2. demonstrate proficiency in the use of the tools of the broadcast industry, such as control room boards, microphones, and various types of tapes.
3. secure, write, and edit news for broadcasting and apply a general knowledge of physical and social sciences.
4. demonstrate effective performance in the various types of specialized radio announcing including news, interviews, sports, and talk shows.

5. describe and estimate the impact of the governmental control exercised by the Federal Communications Commission and the Federal Trade Commission.

6. demonstrate the ability to acquire and evaluate appropriate demographic information and design a specific broadcast facility based on such information.

7. evaluate the nature of advertising in the United States as it relates to the economy of the nation and create usable broadcast advertising.

8. explain the philosophical concepts of American broadcasting in contrast to those of other countries and relate this to the American form of government.

9. describe and analyze the history of the broadcast industry as it relates to current forms of radio broadcasting.

10. appraise the community responsibility of broadcast facilities and assess the need for public service based on FCC regulations.

11. secure a Third Class License, endorsed for commercial broadcasting.

12. demonstrate mastery of the fundamentals of oral and written communications.

13. evidence facility in thinking and speaking extemporaneously.

14. demonstrate proficiency in job seeking including preparation of effective letters of application, resumes, and audition tapes.

15. demonstrate knowledge of a lifetime sport which will provide recreation and promote physical fitness.

Building Technology and Estimating Program (BE)
Special Program
Lewisburg Federal Penitentiary

FIRST SEMESTER

			Credits
BCT	513	Buildings and Specifications	3
ARC	114	Building Materials & Methods I	3
ARC	233	Building Equipment I	3
CET	113	Introductory Surveying	2
MTH	100	Technical Mathematics II	3
			14

SECOND SEMESTER

			Credits
BCT	123	Safety in Building Technology	2
BCT	126	Construction Job Management	3
BCT	524	Building Trades & Estimating	3
ARC	232	Building Materials & Methods II	3
ARC	242	Building Equipment II	3
		Optional Elective	0/3
			14/17

Business Management (BM)
Associate Degree/Two Years

This program provides basic business knowledge and covers management theory and application procedures, business concepts, and the effect of business on the economy.

Types of Jobs: Junior-executive or management trainee positions in manufacturing, retailing, finance, banking, insurance, marketing, and government.

FIRST SEMESTER

			Credits
MGT	110	Principles of Business	3
MGT	111	Business Mathematics	3
ACC	112	Accounting I	3
SEC	111	Typewriting I	3
ENL	111	English Composition I	3
PED		Physical Education	1
			16

SECOND SEMESTER

			Credits
MGT	124	Office Procedures	2
MGT	125	Finance	3
ACC	122	Accounting II	3
CSC	118	Fundamentals of Computer Science	3
ENL	202	Fundamentals of Speech	3
PED		Physical Education	1
			15

THIRD SEMESTER

			Credits
MGT	230	Business Communications	3
MGT	231	Business Law I	3
ACC	230	Managerial Accounting	3
		Elective-Computer Science	3
		Elective-Social Science	3
		Elective	3
			18

FOURTH SEMESTER

			Credits
MGT	240	Marketing	3
MGT	241	Business Law II	3
ECO	201	Principles of Economics	3
		Elective	3
			15

PROGRAM OBJECTIVES

The general objective of this program is to prepare the student for employment in the business management field. Alternatives may be to pursue advanced study or to add to the competencies of those currently employed in the field.

The graduate should be able to:

1. demonstrate specialized knowledge and skills applicable to immediate employment in the business management field.
2. demonstrate potential for managerial growth through use of tools of modern decision making.
3. illustrate an awareness of profit motives.
4. apply generally accepted accounting principles.
5. identify, compare, and utilize financial statements and management information systems.
6. evaluate consumer needs, and relate them to current business procedures.
7. relate in a positive manner to supervisors, peers, and subordinates on an interpersonal level.
8. apply knowledge of electronic data processing systems in making managerial decisions.
9. demonstrate skill in effective oral and written communication.
10. identify the legal aspects affecting business.
11. identify the need for physical fitness and positive leisure activities.

SECOND SEMESTER

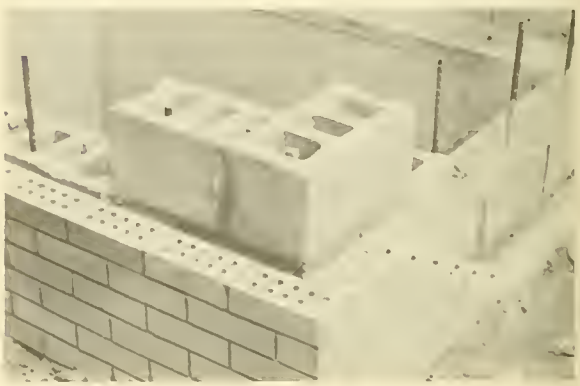
			Credits
BCT	121	Estimating and Blueprints	2
BCT	122	Block Construction	6
ENL	121	English Composition II	3
MTH	104	College Trigonometry	3
PED		Physical Education	1
			15

THIRD SEMESTER

			Credits
BCT	231	Roof-framing Theory	3
BCT	232	Brick Construction	5
ELT	110	Electricity for the Trades	3
ECO	201	Principles of Economics	3
PHS	100	Physics-Mechanics	4
			18

FOURTH SEMESTER

			Credits
BCT	241	Advanced Carpentry	4
BCT	242	Building Construction Technology	6
BCT	243	Concrete Construction	3
		Elective-General*	3/4
			16/17



Carpentry and Building Construction Technology (CB) Associate Degree/Two Years

This program covers the theoretical and practical aspects of light building construction. It also explores the principles and techniques of light-frame carpentry and masonry with emphasis on design, construction, cost estimation, and management.

Types of Jobs: Positions leading to supervisor, building technician, or construction superintendent.
Required High School Subjects: Two years of algebra, one year of science. One year of geometry is desirable. For exception, see pg. 7.
*GENERAL ELECTIVES are courses chosen from outside your program of concentration.

FIRST SEMESTER

			Credits
BCT	111	Woodworking for Carpenters	4
BCT	112	Construction Carpentry	4
ENL	111	English Composition I	3
MTH	103	College Algebra	3
PED		Physical Education	1
			15

PROGRAM OBJECTIVES

The general objective is to prepare the student to obtain employment in the building construction industry, and insure that he/she has an understanding of all basic manipulative skills as well as related information needed to solve trade problems at the level of construction supervisors, job superintendents, building technicians or management personnel.

A graduate of the Building Construction Technology program should be able to:

1. write clear, concise, legible, and accurate technical reports and be skilled in oral communication as related to the construction industry.
2. demonstrate the basic manipulative skills of the trade which are necessary in laying out work, planning, erecting, and framing.

3. interpret and prepare plans, drawings, specifications, lines, symbols, and abbreviations on working drawings or blueprints.

4. demonstrate his/her ability to lay out and erect a platform or western frame structure.

5. analyze specifications and contract drawings and make accurate quantity take-offs and labor estimations to develop an estimated construction cost for a building project.

6. demonstrate basic knowledge and skill in masonry and concrete construction.

7. describe various types of materials and methods available to the construction trade.

8. describe business organization, financing, labor relations, selling, pricing, customer service, management, and other business principles.

9. describe the complexity of the building construction industry, the interrelationships of the various trades, and methods of communication and coordination among all trades and professions within the industry.

10. solve building construction problems using mathematical concepts learned in algebra and trigonometry.

11. apply scientific procedures learned in physics as they relate to problem solving techniques within the building construction area.

12. demonstrate knowledge of a lifetime sport which will provide recreation and promote physical fitness.

Civil Engineering Technology (CT)
Associate Degree/Two Years

This program prepares the student to assist civil engineers in the planning, designing and construction of highways, railroads, bridges, airfields, buildings, and dams. Experience with modern equipment prepares the student to meet the challenge of recent technical developments.

Types of Jobs: Engineering technician, surveyor, inspector, drafting, cartographer, design technician, and photogrammetrist.
High School Subjects Required: Two years of algebra, one year of science. For exception, see pg. 7.
*GENERAL ELECTIVES are courses chosen from outside your program of concentration. (In area of Communications, Humanities, Social Science, Mathematics, Science, Allied Health, Business or Computer Science.)

FIRST SEMESTER

			Credits
CET	111	Materials of Construction	2
CET	112	Engineering Drawing	3
CET	113	Introductory Surveying	2
ENL	111	English Composition I	3
MTH	103	College Algebra	3
PED		Physical Education	1
		Elective-General*	3/4
			17/18

SECOND SEMESTER

			Credits
CET	121	Plane Surveying	4
CET	122	Topographic Drawing and Cartography	3
ECO	201	Principles of Economics	3
ENL	121	English Composition II	3
MTH	104	College Trigonometry	3
PED		Physical Education	1
			17

THIRD SEMESTER

			Credits
CET	231	Route Surveying	4
CET	232	Origin, Distribution & Behavior of Soils	3
CET	233	Statics	3
CET	234	Highway Engineering Technology	3
PHS	100	Physics-Mechanics	4
			17

FOURTH SEMESTER

			Credits
CET	241	Advanced Surveying	3
CET	242	Fluid Mechanics	3
CET	243	Strength of Materials	3
CET	244	Photogrammetry	3
CSC	100	FORTRAN IV Programming	3
		Elective-General*	3
			18

PROGRAM OBJECTIVES

The general objective of the Civil Engineering Technology program is to enable the student to evaluate his/her interest and abilities within the broad field of civil engineering. This will enable the student to make a choice regarding future employment or specialized study in a specific field of civil engineering.

A graduate of the Civil Engineering Technology program should be able to:

1. differentiate between various types of surveys and select and use the proper instruments and methods to satisfy the requirements for each survey. These will include boundary, control, construction, topographic and geodetic surveys.

2. construct a cartographic and topographic map using recognized mapping procedures.

3. apply the functions and principles of aerial photographs in making engineering measurements and topographic maps.

4. apply basic criteria used to design, locate, and estimate earthwork quantities for highway construction.

5. determine and use the engineering properties of the basic construction materials such as steel, concrete, wood, and soil.

6. apply the functions of basic structural components and be able to design these components to resist applied loads.

7. demonstrate working knowledge of mechanics of compressible and incompressible fluid flow and their applications to piping systems, pumps, open channels, and reservoirs.

8. communicate effectively through the skills learned in English Composition and Engineering Drawing.

9. utilize social science concepts to deepen an understanding of self and to relate more effectively to others.

10. use concepts developed in algebra and trigonometry to solve problems related to civil engineering.

11. apply scientific procedures learned in physics to the solution of engineering problems.

12. recognize the need for physical fitness and lifelong recreational activities through physical education.

13. prepare computer programs in order to solve engineering problems.

Clerical Studies (BT)
Certificate/One Year
(Starts in January of each year)

This program provides the fundamentals of typewriting, business machine calculation, and clerical procedures. It also covers indexing principles, filing, and basic office techniques.

Types of Jobs: Clerk-typist, business machine operator, filing, general clerical, elementary accounting work, shorthand transcription.

FIRST SEMESTER

			Hours
CLS	717	Clerical Procedures	176
SEC	111	Typewriting I	80
SEC	112	Office Machines	64
ENL	711	Communications	48
			368

SECOND SEMESTER

			Hours
CLS	728	Clerical Workshop	192
MGT	111	Business Mathematics	48
MGT	230	Business Communications	48
SEC	121	Typewriting II	80
			368

PROGRAM OBJECTIVES

The general objective of the Clerical Studies program is to enable students to enter the business world in a clerical capacity with competency and efficiency.

The graduate should be able to:

1. demonstrate skill in performing routine office tasks.

2. demonstrate skill in effective written and oral communications.

3. employ competencies in basic clerical office procedures.

4. illustrate basic knowledge of modern office equipment and office supplies.

5. apply working knowledge of reprographics, word processing, and computational skills.

6. assess and influence behavior among supervisors, peers, and subordinates.

7. apply general knowledge of the social sciences, and possess an awareness of their effect on our society.

COLLEGE & UNIVERSITY TRANSFER PROGRAMS
General Studies

The Associate of Arts in General Studies is the degree usually completed by students who wish to transfer to a four year institution offering the last two years of study toward a four-year degree. The Associate of Arts Degree allows considerable flexibility in course selection. Students are encouraged to select courses which can be transferred regardless of the field of concentration. It is strongly recommended that as soon as possible you identify the school to which you wish to transfer. You and your WACC advisor can then plan a program at WACC that will be within the broad outline of the specific four year degree and school in which you are interested.

OBJECTIVES

Upon completion of the General Studies Program the student will

1 Have general knowledge each of the following areas: Communications, Quantitative Concepts and Skills, Humanities, Social Sciences, Natural Sciences, and the building and maintenance of good health.

2 Have a comprehensive knowledge of one or more of the following areas: Communications, Quantitative Concepts and Skills, Humanities, Social Sciences, Natural Sciences.

3 Have the academic background essential for transfer into related baccalaureate degree programs.

4 Demonstrate the ability to reason logically, to analyze, synthesize, and evaluate information, and to apply mathematical reasoning processes and/or the scientific method

5 Display open-mindedness and a willingness to appropriately modify performance or attitudes when faced with sufficient reason to do so

6 Produce work that demonstrates ability to integrate various academic and practical experiences.

7 Display an awareness of our cultural traditions and a sensitivity toward the traditions of other cultures

8 Display acceptable social values and attitudes in day to day activity, including productive citizenship and responsibility toward self and others

9 Experience greater joy in living because of an increased awareness of social, cultural, and natural environments.

GRADUATION REQUIREMENTS

1 Successfully complete the general college graduation requirements for all Associate Degree Programs. (See pg 19.)

2. Successfully complete a total of 64 credits of Associate Degree level course work selected from the General Education Core areas (as defined below) and from health and physical education.

GENERAL EDUCATION CORE

Communications
English
Languages
Speech

Quantitative Concepts & Skills
Mathematics
Statistics

Humanities
Philosophy
History
Government

Social Sciences
Economics
Psychology
Sociology

Natural Sciences
Biology
Chemistry
Physics
Environmental Science
Geology
Geography

Appropriate associate degree courses offered outside the general education core may be substituted with the approval of the student's advisor and Division Director.

3 Successfully complete a core of 24 credits of general education which will include:

Communications	6 credits
Quantitative Concepts and Skills	6 credits
Humanities	3 credits
Social Science	3 credits
Natural Science (to include at least 3 hours of laboratory)	7-8 credits

4 Successfully complete 2 credits in health and 2 credits in physical education OR 4 credits in physical education.

5. Complete all placement testing required by the College. Students must demonstrate basic mastery of English, reading, and mathematics through placement testing or successful completion of appropriate courses designed to provide basic skills and competencies in these areas.

The General Studies Program Curriculum (GS)

To meet their individual needs, students may substitute for courses listed below upon recommendation of the student's academic advisor and approval by the appropriate Division Director. It is strongly recommended that as early as possible the student review the requirements of the particular program of the institution he/she plans to attend upon completing the General Studies program. Elective credits can then be selected to meet these requirements.

FIRST SEMESTER

			Credits
ENL	111	English Composition I	3
MTH	101	Introduction to Mathematics I	
		or	3
MTH	103	College Algebra	
PED	101	Physical Education	1
		Humanities Elective	3
		*Natural Science Elective	3-4
		General Core Elective	3
			16-17

SECOND SEMESTER

			Credits
ENL	121	English Composition II	3
MTH	102	Introduction to Mathematics II	
		or	3
MTH	104	College Trigonometry	
PED	102	Physical Education	1
		Social Science Elective	3
		*Natural Science Elective	3-4
		General Core Elective	3
			16-17

THIRD SEMESTER

Credits

**An elective program based on the students major educational and vocational interests. Completion of Physical Education requirement.

16-18 Credits

FOURTH SEMESTER

**An elective program based on the student's major educational and vocational interests.

16-18 Credits

*To include at least one course with a 3 hour laboratory.

**Elective credits may come from any 100 or 200 level associate degree courses offered by the College. It is strongly recommended that the majority of these credits be taken within the General Education Core discipline areas to assure maximal transferability and congruence with the requirements of most baccalaureate institutions. Courses selected from outside the General Education Core need the approval of the student's advisor and Division Director.

Curriculum Guides

Students who contemplate professional or semi-professional preparation in the arts and sciences may initiate their undergraduate studies at WACC. Since most students who undertake such a program at the College plan to transfer to four-year institutions to complete the requirements for the baccalaureate degree, they are advised to schedule courses that meet the requirements of the institution to which transfer is desired. The student is reminded that his/her success in transferring to a particular college will largely depend on the quality of academic achievement at WACC.

Curriculum guides for recommended associate degree programs in career areas requiring education beyond an associate degree are shown below. These include career areas with:

1. Business Administration Emphasis
2. Communications Emphasis
3. Education Emphasis
4. Math-Science Emphasis
5. Pre-Law Emphasis
6. Pre-Medical Emphasis
7. Pre-Theological Emphasis
8. Social Work Emphasis

The typical programs suggested are *recommendations, not requirements.* They indicate particular course selections within the guidelines of the General Studies Program.

Business Administration Emphasis

This program is designed to provide the first two years of instruction for students who wish to transfer to a four-year institution and obtain their baccalaureate degree in Business Administration. Students entering this curriculum should evidence a strong desire, aptitude, and motivation toward business. Career possibilities for students who complete a four-year program include accounting, economics, finance, foreign commerce, economic geography, industrial management, personnel management, insurance, marketing, and real estate.

FIRST SEMESTER

			Credits
ENL	111	English Composition I	3
MTH	103	College Algebra	3
HIS	111	Western Civilization I	
		or	3
HIS	231	United States-Survey I	
MGT	110	Principles of Business	3
PED	101	Physical Education	1
		General Core Elective	3
			16

SECOND SEMESTER

			Credits
ENL	121	English Composition II	3
MTH	201	Elementary Statistics	3
HIS	121	Western Civilization II	
		or	3
HIS	241	United States-Survey II	
ECO	201	Principles of Economics	3
PED	102	Physical Education	1
		General Core Elective	3
			16

THIRD SEMESTER

			Credits
ENL	202	Fundamentals of Speech	3
ACC	112	Accounting I	3
MGT	231	Business Law I	3
PSY	111	General Psychology	3
PED	103	Physical Education	1
		Natural Science Elective	3-4
			16-17

FOURTH SEMESTER

			Credits
ACC	122	Accounting II	3
MGT	241	Business Law II	3
CSC	118	Fundamentals of Computer Science	3
PED	104	Physical Education	1
		General Core Elective	3
		Natural Science Elective	3-4
			16-17

Communications Emphasis

The program is designed to provide the first two years of instruction for students planning careers in some aspect of communications. Career possibilities include: advertising, broadcasting, free-lance writing, journalism, and public relations. The intent of this program is not to prepare students for immediate employment upon graduation. Its purpose is to allow students to explore various career areas in mass communications while completing course work designed for transfer to a four- year college or university.

FIRST SEMESTER

			Credits
ENL	111	English Composition I	3
JOU	111	Newswriting	3
JOU	112	Photography for Newspapers	2
MTH	101	Introduction to Mathematics I	3
PED	101	Physical Education	1
		General Core Elective	3
			15

SECOND SEMESTER

			Credits
ENL	121	English Composition II	3
BRC	121	Newswriting for Radio and Television	3
PSY	111	General Psychology	3
MTH	102	Introduction to Mathematics II	3
HIS	111	Western Civilization I	3
PED	102	Physical Education	1
			16

THIRD SEMESTER

			Credits
ENL	235	Creative Writing	3
JOU	231	Feature Writing	3
SOC	111	Introduction to Sociology	3
PED	103	Physical Education	1
		General Core Elective	3
		Natural Science Elective	3-4
			16-17

FOURTH SEMESTER

			Credits
ENL	201	Technical Writing	3
ENL	202	Fundamentals of Speech	3
ADV	101	Principles of Advertising	3
PED	104	Physical Education	1
		General Core Elective	3
		Natural Science Elective	3-4
			16-17

Education Emphasis

The Education Emphasis provides the student with a program of studies typical of that found in the first two years of a four-year professional education curriculum. The student thus has the opportunity to complete many of the general education courses and to become familiar with education as a career. The student who enrolls in this program is generally expected to continue toward a baccalaureate degree after graduation. However, the student who is interested in an educational role as a paraprofessional may find employment in certain types of positions following completion of the program.

FIRST SEMESTER

			Credits
ENL	111	English Composition I	3
EDU	111	Introduction to Education	3
PSY	111	General Psychology	3
MTH	101	Introduction to Mathematics I	
		or	3
MTH	103	College Algebra	
PED	101	Physical Education	1
		General Core Elective	3
			16

SECOND SEMESTER

			Credits
ENL	121	English Composition II	3
ECO	201	Principles of Economics	3
SOC	121	Introduction to Social Work	3
MTH	102	Introduction to Mathematics II	
		or	3
MTH	104	College Trigonometry	
PED	102	Physical Education	1
		General Core Elective	3
			16

THIRD SEMESTER

			Credits
MTH	201	Elementary Statistics	3
EDU	121	Children's & Young Adult Literature	3
HIS	111	Western Civilization I	3
PED	103	Physical Education	1
		General Core Elective	3
		Natural Science Elective	3-4
			16-17

FOURTH SEMESTER

			Credits
ENL	202	Fundamentals of Speech	3
PSY	231	Educational Psychology	3
HIS	121	Western Civilization II	3
PED	104	Physical Education	1
		General Core Elective	3
		Natural Science Elective	3-4
			16-17

Math-Science Emphasis

Students with a strong background in mathematics and science have many opportunities in such fields as engineering, research, actuarial science, time-study analysis, economics, as well as such careers as mathematical or scientific technicians in business, industry, and government. Students entering this curricular emphasis area should evidence aptitude and motivation toward mathematics and science.

FIRST SEMESTER

			Credits
ENL	111	English Composition I	3
MTH	103	College Algebra	
		or	3-4
MTH	238	Calculus I	
HIS	111	Western Civilization I	
		or	3
HIS	231	United States-Survey I	
		Laboratory Science (Biology, Chemistry, Physics, or Geology)	4
ECO	201	Principles of Economics	3
PED	101	Physical Education	1
			17-18

SECOND SEMESTER

			Credits
ENL	121	English Composition II	3
MTH	104	College Trigonometry	
		or	3-4
MTH	248	Calculus II	
HIS	121	Western Civilization II	
		or	3
HIS	241	United States-Survey II	
		Laboratory Science (Biology, Chemistry, Physics, or Geology)	4
PED	102	Physical Education	1
		General Core Elective	3
			17-18

THIRD SEMESTER

			Credits
		Literature or Sociology	3
MTH	201	Elementary Statistics	3
		Laboratory Science (Biology, Chemistry, Physics, or Geology)	4
		Computer Science	3
PED	103	Physical Education	1
		General Core Elective	3
			17

FOURTH SEMESTER

			Credits
		Literature or Sociology	3
MTH	204	Matrix Algebra	3
		Laboratory Science (Biology, Chemistry, Physics, or Geology)	4
		Computer Science	3
PED	104	Physical Education	1
		General Core Elective	3
			17

Pre-Law Emphasis

The student who plans to enter law school should structure a program which includes a broad base of liberal studies. The Association of American Law Schools has drawn up a statement that it believes describes the best type of pre-legal training. While the statement does not specify exact courses, it does emphasize three areas to be developed:

1. Comprehension and expression in words
2. Critical understanding of human institutions and values
3. Creative power in thinking

In an attempt to aid the student in the acquisition of these skills, the following program is suggested. Modifications in this program to meet particular student needs should be planned in conjunction with the pre-law advisor.

FIRST SEMESTER

			Credits
ENL	111	English Composition I	3
MTH	103	College Algebra	
		or	3-4
MTH	238	Introduction to Differential and Integral Calculus	
HIS	111	Western Civilization I	3
PSY	111	General Psychology	3
PED	101	Physical Education	1
		General Core Elective	3
			16-17

SECOND SEMESTER

			Credits
ENL	121	English Composition II	3
MTH	104	College Trigonometry	
		or	3-4
MTH	248	Calculus II	
HIS	121	Western Civilization II	3
SOC	111	Introduction to Sociology	3
PED	102	Physical Education	1
		General Core Elective	3
			16-17

THIRD SEMESTER

			Credits
ENL	202	Fundamentals of Speech	3
ACC	112	Principles of Accounting I	3
PHL	111	Introduction to Philosophical Analysis	3
GOV	231	American Government-National	3
PED	103	Physical Education	1
		Natural Science Elective	3-4
			16-17

FOURTH SEMESTER

			Credits
ECO	201	Principles of Economics	3
ACC	122	Principles of Accounting II	3
PHL	121	Ethics and Political Analysis	3
GOV	241	State and Local Government	3
PED	104	Physical Education	1
		Natural Science Elective	3-4
			16-17

Pre-Medical Emphasis

The Pre-Medical Emphasis curriculum will provide preparation for such professions and careers as medicine, pharmacy, dentistry, optometry, veterinary medicine, chiropractic, other health professions, and scientific research. Students seeking to transfer credits toward the baccalaureate degree and whose major interests center on chemistry, physics, biology, and associated disciplines should pursue this curriculum. Because of the rigorous and time-consuming nature of the medical programs, which include much training in clinical laboratories and patient-related experiences, students should evidence aptitude and motivation toward mathematics and science, with special emphasis on laboratory experience and manual dexterity.

FIRST SEMESTER

			Credits
ENL	111	English Composition I	3
MTH	103	College Algebra	
		or	3-4
MTH	238	Calculus I	
HIS	111	Western Civilization I	
		or	3
HIS	231	United States-Survey I	
BIO	113	General Biology I	4
CHM	111	General Chemistry I	4
			17-18

SECOND SEMESTER

			Credits
ENL	121	English Composition II	3
MTH	104	College Trigonometry	
		or	3-4
MTH	248	Calculus II	
PSY	111	General Psychology	3
BIO	123	General Biology II	4
CHM	121	General Chemistry II	4
PED	101	Physical Education	1
			18-19

THIRD SEMESTER

			Credits
		Literature or Sociology	3
PHS	116	General Physics I	4
BIO	115	Human Anatomy & Physiology I	4
PED	102	Physical Education	1
		General Core Electives	3-6
			15-18

FOURTH SEMESTER

			Credits
		Literature or Sociology	3
PHS	126	General Physics II	4
BIO	125	Human Anatomy & Physiology II	4
BIO	201	Microbiology	4
PED	105	Personal & Community Health	2
			17

Pre-Theological Emphasis

This program is designed to provide the first two years of instruction for students planning careers in religious education, the missionary field, or the ministry. It is developed from the recommendations set forth by the Association of Theological Schools. They advise that such programs have a broad base of liberal studies, complemented by a major in either the humanities or the social sciences.

FIRST SEMESTER

			Credits
ENL	111	English Composition I	3
MTH	101	Introduction to Mathematics I	
		or	3
MTH	103	College Algebra	
PSY	111	General Psychology	3
HIS	111	Western Civilization I	3
PED	101	Physical Education	1
		General Core Elective	3
			16

SECOND SEMESTER

			Credits
ENL	121	English Composition II	3
MTH	102	Introduction to Mathematics II	
		or	3
MTH	104	College Trigonometry	
SOC	111	Introduction to Sociology	3
HIS	111	Western Civilization II	3
PED	102	Physical Education	1
		General Core Elective	3
			16

THIRD SEMESTER

			Credits
ENL	202	Fundamentals of Speech	3
PHL	111	Introduction to Philosophical Analysis	3
SOC	231	Marriage & the Family	3
PED	103	Physical Education	1
		Social Science Elective	3
		Natural Science Elective	3-4
			16-17

FOURTH SEMESTER

			Credits
ECO	201	Principles of Economics	3
PHL	121	Ethics and Political Philosophy	3
PSY	203	Developmental Psychology	3
PED	104	Physical Education	1
		Social Science Elective	3
		Natural Science Elective	3-4
			16-17

Social Work Emphasis

The Social Work Emphasis provides the student with preparation for various careers in the human services. With an Associate Degree, the student may find employment as a paraprofessional in such diverse fields as child care, gerontology, mental health, mental retardation, or social work. Or, students may continue study toward a baccalaureate degree at a four-year college or university. All courses in this program are designed to provide the student with both entry-level career skills and college transfer credit.

FIRST SEMESTER

			Credits
ENL	111	English Composition I	3
SOC	111	Introduction to Sociology	3
MTH	101	Introduction to Mathematics I	
		or	3
MTH	103	College Algebra	
PSY	111	General Psychology	3
PED	101	Physical Education	1
		General Core Elective	3
			16

SECOND SEMESTER

			Credits
ENL	121	English Composition II	3
SOC	121	Introduction to Social Work	3
MTH	102	Introduction to Mathematics II	
		or	3
MTH	104	College Trigonometry	
PSY	201	Abnormal Psychology	3
PED	102	Physical Education	1
		General Core Elective	3
			16

THIRD SEMESTER

			Credits
SOC	231	Marriage and the Family	3
MTH	201	Elementary Statistics	3
PSY	203	Developmental Psychology	3
PED	103	Physical Education	1
		Humanities Elective	3
		Natural Science Elective	3-4
			16-17

FOURTH SEMESTER

			Credits
SOC	241	Urban Sociology	
		or	3
SOC	242	Criminology	
ECO	201	Principles of Economics	3
PED	104	Physical Education	1
		Internship Option or Social Science Elective	3
		General Core Elective	3
		Natural Science Elective	3-4
			16-17

INDIVIDUAL STUDIES PROGRAM

The Individual Studies program is designed to give maximum flexibility in planning a course of study. A student who is unsure of his/her goals, is interested in personal enrichment, wishes to explore a very specialized technical career, or has other goals which do not fit any of the prescribed programs offered by the College, may wish to enroll in the Individual Studies program.

OBJECTIVES

Upon completion of the Individual Studies Program the student will have achieved one or more of the following:

1. An awareness of his/her academic and manual skills, careers for which to prepare, and/or careers which are unsuitable.
2. Comprehensive knowledge of a subject of personal interest.
3. Technical skill in an area(s) of his/her own choosing as well as general knowledge of academic subjects for which a need is felt.
4. Entry-level job skills in a paraprofessional or technical area.
5. Completion of courses which are equivalent to those of a four-year program into which he/she intends to transfer.

GRADUATION REQUIREMENTS

1. Successfully complete the general college graduation requirements for all Associate Degree Programs. (See pg. 19.)
2. Successfully complete a minimum of sixty (60) credit hours of Associate Degree level courses:
   a. The 60 credit hours must include 12 credits of General Education Core courses as specified below:

Communications	6 credits
Quantitative Concepts & Skills	3 credits
Humanities OR Social Sciences OR Natural Science	3-4 credits

   b. Full-time students must complete four additional credits of Physical Education, bringing the total number of required credits to 64; part-time students may be exempted from this requirement.
3. Complete all placement testing required by the College. Students must demonstrate basic mastery of English, reading, and mathematics through placement testing or successful completion of appropriate courses designed to provide basic skills and competencies in these areas.
4. The student must have participated in a planned educational program of studies. This plan should be developed in conjunction with an advisor and be filed with the appropriate Division Director prior to the completion of eighteen (18) semester hours of credit.

CURRICULUM POSSIBILITIES

Courses selected for inclusion in an individual studies program depend almost entirely upon the goal of the individual student. In consultation with an advisor, the student may select precisely those courses which best meet his/her needs and allow him/her to reach a chosen goal. However, it may take longer than two years for an individual to complete the courses desired because of scheduling conflicts. This is particularly true for laboratory or shop courses requiring large blocks of time.

AN EXAMPLE OF A PLANNED INDIVIDUAL STUDIES PROGRAM

A person may wish to enroll in the Individual Studies program to prepare for a particular occupational specialty not regularly offered. For instance, a person who enjoys flower arranging and cooking might decide to develop their own business utilizing their skills. Some form of specialized catering, for example wedding catering, would be a possibility. Courses could be selected from areas of Food and Hospitality Management, Floriculture, Business, and related areas. One possible selection of 64 credits of course work follows:

Food and Hospitality Management
Quantity Food Preparation
Menu Planning & Cost Control
Purchasing, Storage & Sanitation
Hospitality Merchandising
Equipment & Layouts
Supervision, Work Simplification & Incentives

Floriculture
Floral Design I
Floral Design II
Flower Shop Operation

Business
Principles of Business
Business Communications
Principles of Accounting I
Principles of Accounting II
Small Business Management
Business Mathematics

Related
Introduction to Mathematics I
English Composition I
English Composition II
Fundamentals of Chemistry
Physical Education

Another student with this same career goal might choose to emphasize one area more than another depending on interest and prior experience. For example, someone who had prepared food for many large parties in their own home might feel quite competent in the food area and wish to emphasize business courses. The exact combination of courses in the individual studies program is decided entirely by the individual, with the help of an advisor.

Computer Operator (CO)
Certificate/One Year

This program trains the student in all aspects of data processing operations and the effective utilization of the equipment. The student is prepared for entry into industry as a qualified computer operator and related technician. This program provides an option for those students who have an interest in and aptitude for a data processing career, but do not desire to be programmers.

Types of Jobs: Computer operator, peripheral data processing equipment operator, operations manager, data and job control managers and technical sales representatives.

FIRST SEMESTER

			Hours
COP	710	Basic Computer Operations	96
COP	711	Computer Operations Internship I	96
CSC	118	Fundamentals of Computer Science	48
ACC	112	Accounting I	48
SEC	709	Typewriting	48
ENL	111	English Composition I	48
			384

SECOND SEMESTER

			Hours
COP	720	Advanced Computer Operations	64
COP	721	Computer Operations Internship II	96
COP	722	Computer Technology	48
CSC	117	RPG Programming	48
MGT	124	Office Procedures	64
ENL	201	Technical Writing	48
			368

PROGRAM OBJECTIVES

The general objective of the Computer Operator program is to prepare the student to obtain employment in the field of computer operations in various positions such as computer operator, peripheral equipment operator, data entry clerk, or data controller.

The graduate should be able to:

1. operate computer systems.
2. demonstrate competent communication skills in technical writing.
3. relate in a positive manner to supervisors, peers, and subordinates on an interpersonal level.
4. utilize system utility programs.
5. interpret and manage data controls from data entry to completed output.
6. interpret and utilize written documentation for program execution.
7. apply job control language to execute computer jobs.
8. operate peripheral and related data processing equipment.
9. maintain operation logs and libraries.
10. perform routine housekeeping tasks in the computer area and general maintenance on the equipment.
11. apply generally accepted accounting principles.

Computer Science Technology (CS)
Associate Degree/Two Years

This program trains the student in various computing systems in electronic data processing. It provides a broad range of knowledge of programming techniques and experience in operation of computer systems and peripheral data processing equipment. The curriculum offers a secondary background in business accounting and management or math and science.

Types of Jobs: Computer programmer, junior systems analyst, sales representative, related technician.
High School Subjects Required: Two units of mathematics including algebra. For exception, see pg. 7.
*GENERAL ELECTIVES are courses chosen from outside your program of concentration.

FIRST SEMESTER

			Credits
CSC	117	RPG Programming	3
CSC	118	Fundamentals of Computer Science	3
ACC	112	Accounting I	3
ENL	111	English Composition I	3
MTH	101	Introduction to Mathematics I**	3
PED		Physical Education	1
			16

SECOND SEMESTER

			Credits
CSC	127	Assembler Language Programming	4
CSC	128	COBOL Programming I	3
ENL	121	English Composition II	3
MTH	102	Introduction to Mathematics II**	3
PED		Physical Education	1
		Elective-Math/Science	
		or	3/4
		Elective-Business	
			17/18

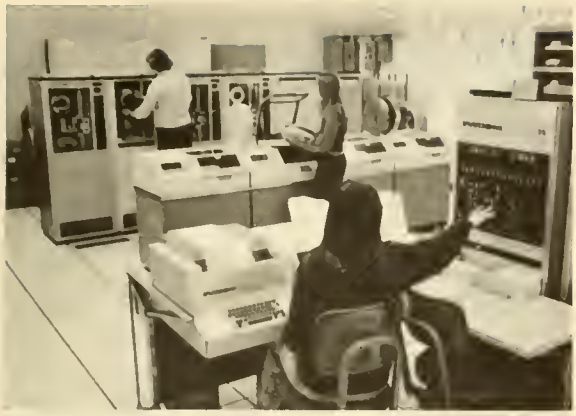
THIRD SEMESTER

			Credits
CSC	233	Systems Development & Applications I	3
CSC	236	FORTRAN IV & Linear Programming	4
CSC	238	COBOL Programming II	3
MTH	201	Elementary Statistics I	3
		Elective-Math/Science	
		or	3/4
		Elective-Business	
			16/17

FOURTH SEMESTER

			Credits
CSC	243	Systems Development & Applications II	3
CSC	245	Computer Software Systems	3
CSC	246	PL/1 Programming	3
		Elective-Math/Science	
		or	3/4
		Elective-Business	
		Elective-General*	3/4
			15/17

**Students may elect MTH 103 and MTH 104 or MTH 238 and MTH 248 with permission of the Mathematics, Science & Allied Health Division.



PROGRAM OBJECTIVES

The general objective of the Computer Science program is to prepare the student to obtain employment as a computer programmer or a junior systems analyst. Alternatives may be to pursue advanced study or to add to the competencies of those currently employed in the field.

The graduate should be able to:

1. write effective, efficient computer programs in RPG, COBOL, FORTRAN IV, Assembler, and PL/1 languages.
2. demonstrate ability to reason logically, to analyze, to synthesize, and to evaluate technical information and to apply these processes to pertinent problems.
3. demonstrate competent communication skills in oral and written form.
4. relate in a positive manner to supervisors, peers, and subordinates on an interpersonal level.
5. prepare written documentation of computer programs.
6. assist in the design of business systems.
7. utilize system software packages to execute computer jobs.
8. identify the concepts and organization of the various operating systems.
9. design and incorporate data controls from data entry to completed output.
10. use interactive programming techniques.
11. employ the basic operations of a computer system and related data processing equipment.
12. apply generally accepted accounting and mathematical principles.
13. apply general knowledge of the social sciences, and possess an awareness of their effect on our society.
14. identify the need for physical fitness and positive leisure activities.

Construction Carpentry (CC)
Certificate/Two Years

Students in this program receive laboratory instruction on the proper use of hand tools, portable power tools and portable power equipment, and become licensed in the use of power activated tools. The necessary classroom theory on methods, procedures, and materials is given. The program includes working on the construction of a residential building under supervision of qualified instructors.

Types of Jobs: Apprentice carpenters or masons, with advancement possibilities, also employment in plants or factories where building units, components, or building materials are made or sold.

FIRST SEMESTER

			Hours
CNC	711	Surveying, Layout & Blueprint Reading (8 weeks)	48
CNC	712	Concrete and Block (8 weeks)	152
CNC	713	Brick and Stone (8 weeks)	200
ENL	711	Communications	48
MTH	710	Technical Mathematics I	48
			496

SECOND SEMESTER

			Hours
CNC	721	Framing and Sheathing (8 weeks)	200
CNC	722	Exterior Finish (8 weeks)	200
ARC	101	Basic Architectural Drafting	96
			496

THIRD SEMESTER

			Hours
CNC	831	Interior Finish (8 weeks)	176
CNC	832	Interior Trim (8 weeks)	176
CNC	833	Blueprints and Specifications	48
		Optional Elective	0/48
			400/448

FOURTH SEMESTER

			Hours
CNC	841	Specialty & Related Trades (8 weeks)	152
CNC	842	Practical Construction Experience (8 weeks)	152
CNC	843	Building Trades Estimating	48
CNC	844	Personal & Job Orientation	48
		Optional Elective	0/48
			400/448

PROGRAM OBJECTIVES

The general objective of this program is to prepare the graduating student with basic skills and knowledge for entry into the building construction industry.

A graduate of the Construction Carpentry program should be able to:

1. demonstrate basic knowledge and skills in the use of the transit and other measuring devices in site preparation and building layout.
2. demonstrate basic knowledge and skills in masonry and concrete construction as applied to building construction industry.
3. demonstrate basic knowledge and skills in layout and construction of building framework and sheathing.
4. demonstrate basic knowledge and skills in the installation of exterior siding, roofing, trim and millwork, and building insulation.
5. demonstrate basic knowledge and skills in the installation of interior finish, floors, walls and ceilings.
6. demonstrate basic knowledge and skills in the installation of doors and interior trim; build and/or install cabinet work and finish stairways.
7. demonstrate basic knowledge of trades related to the building industry, such as ceramic tile and resilient floor installations.
8. look for, secure, and keep a job and have insight into possible self-employment, the importance of customer service and personal goals.
9. read and interpret blueprints and specifications, prepare basic architectural drawings, and estimate building costs.
10. use the basic skills of oral and written communication desirable for understanding instructions and presenting ideas and instructions in a clear and logical manner.
11. use basic mathematical skills necessary for job performance and for the development of visualization skills and logical thought processes.
12. practice safe work habits and demonstrate attitudes of responsibility and craftsmanship.

Dental Hygiene (DH)
Associate Degree/Two Years

The Dental Hygiene Program has been developed to prepare young men and women for licensure so that they may pursue a variety of career opportunities within the dental hygiene profession. Clinical experience and field trips are integrated with classroom instruction to provide a diversified background.

Types of Jobs: Private dental practice, dental health education, dental hygiene education, community health.
Required High School Courses: Because of the strong emphasis on science in the dental hygiene program, applicants must have successfully completed one year of high school biology and two years of high school algebra. It is also recommended that the applicant have an additional laboratory science (i.e., physics, chemistry).

FIRST SEMESTER

			Credits
DHG	100	Introduction to Dental Hygiene	4
DHG	115	Oral Anatomy & Histology	3
BIO	115	Human Anatomy and Physiology I	4
CHM	107	General Organic Chemistry	3
ENL	111	English Composition I	3
PED		Physical Education	1
			18

SECOND SEMESTER

			Credits
DHG	101	Clinical Dental Hygiene I	4
DHG	120	Oral Radiology	2
DHG	125	Dental Materials	3
BIO	125	Human Anatomy and Physiology II	4
BIO	201	Microbiology	4
			17

THIRD SEMESTER

			Credits
DHG	200	Clinical Dental Hygiene II	4
DHG	235	Periodontics	1
DHG	237	Pharmacology & Emergencies	3
DHG	239	General & Oral Pathology	2
FHD	112	Nutrition	3
PSY	111	General Psychology	3
			16

FOURTH SEMESTER

			Credits
DHG	201	Clinical Dental Hygiene III	4
DHG	240	Dental Practice Orientation	1
DHG	241	Community Dental Health	2
DHG	243	Dental Specialties	3
ENL	202	Fundamentals of Speech	3
PED		Physical Education	1
		Elective-Social Science	3
			17

PROGRAM OBJECTIVES

The general program objective of the Dental Hygiene program is to prepare students to successfully pass the National Dental Hygiene Board examinations, the Northeast Regional Boards, the required examinations for selected states, and to qualify for employment as dental hygienists.

The Dental Hygiene graduate should be able to:

1. apply knowledge of the design, techniques, and sharpening methods of instruments utilized in dental hygiene procedures.
2. identify anatomical landmarks of the head and neck and deviations from normal.
3. use correct anatomical terminology in classifying all permanent and primary teeth on the basis of morphological and histological characteristics and occlusion.
4. incorporate knowledge of microbiology in aseptic techniques while performing a complete and thorough prophylaxis.
5. demonstrate appropriate preventive oral health procedures.
6. develop, process, and evaluate all types of intra and extra oral radiographs.
7. apply interpersonal, motivational, and communication knowledge and skills from English, speech, psychology, and social sciences to work with patients, other members of the dental health team, and community groups.
8. operate all dental equipment safely, effectively, and efficiently.
9. demonstrate a commitment to professional organizations through attendance at meetings, seminars, and continuing education programs.
10. apply knowledge of dental hygiene skills in a variety of settings (e.g., private practice, specialty practice, public institutions, industry, public health, etc.).
11. administer first aid and emergency treatment.
12. explain properties, dosage, actions, and reactions of drugs used in dentistry.
13. utilize the concepts of anatomy, physiology, and nutrition in the relationship of dental health to total health.
14. record with accuracy all vital signs, health histories, patient records and forms with consideration of legal guidelines.
15. develop sound ethical, philosophical, and moral professional characteristics.
16. apply concepts of chemistry in analyzing dental materials and in relationship to body processes.
17. demonstrate knowledge of a lifetime sport which will provide recreation and promote physical fitness.

Dental Laboratory Technician (DL)
Special Program
Associate Degree/Five Semesters
Lewisburg Federal Penitentiary

FIRST SEMESTER

			Credits
DLT	111	Introduction to Dental Technology	5
DLT	112	Dental Materials	3
ENL	111	English Composition I	3
MTH	101	Introduction to Mathematics I	3
			14

SECOND SEMESTER

			Credits
DLT	121	Denture Techniques I	6
DLT	122	Oral Anatomy	3
ENL	121	English Composition II	3
MTH	102	Introduction to Mathematics II	3
			15

THIRD SEMESTER

			Credits
DLT	231	Denture Techniques II	6
DLT	232	Odontography	4
		Related Courses as available	6
			16

FOURTH SEMESTER

			Credits
DLT	241	Cast Partial Techniques I	6
DLT	242	Crown and Bridge I	5
		Related Courses as available	6
			17

FIFTH SEMESTER

			Credits
DLT	251	Cast Partial Techniques II	6
DLT	252	Crown and Bridge II	5
			11

Diesel Mechanics (DM)
Certificate/Two Years

This program presents theories and develops manipulative skills in the care of diesel-powered highway vehicles, industrial and marine engines, and commercial powerplants. Some specialization is available in fuel injection service, engine repair and rebuilding, power train, brakes, steering, and chassis work.

Types of Jobs: Heavy duty truck mechanic for truck dealership, independent garage, truck fleet, or contractor. Industrial engine mechanic in mining, quarrying, construction equipment, or marine waterways fleet. Also field service representative for diesel engine manufacturer or distributor.

FIRST SEMESTER

		Hours
DMC 711	Basic Diesel Mechanics I (8 weeks)	192
DMC 712	Basic Diesel Mechanics II (8 weeks)	192
MTH 710	Technical Mathematics I	48
		432

SECOND SEMESTER

		Hours
DMC 721	Diesel Mechanics I (8 weeks)	192
DMC 722	Diesel Mechanics II (8 weeks)	192
ENL 711	Communications	48
		432

THIRD SEMESTER

		Hours
DMC 831	Diesel Mechanics III (8 weeks)	192
DMC 832	Diesel Mechanics IV (8 weeks)	192
	Optional Elective	0/48
		384/432

FOURTH SEMESTER

		Hours
DMC 841	Diesel Mechanics V (8 weeks)	192
DMC 842	Diesel Mechanics VI (8 weeks)	192
	Optional Elective	0/48
		384/432

PROGRAM OBJECTIVES

The goal of this program is to prepare the student for a successful career as a diesel mechanic in transportation, construction, marine, and related fields. The program also provides the academic and practical educational experiences which enable students to pass the Pennsylvania Vehicle Safety Inspection Certification as a vehicle safety inspection mechanic.

A graduate of Diesel Mechanics should be able to:

1. diagnose and repair common malfunctions of systems and components on popular makes of diesel engines.
2. demonstrate correct service of:
   a. diesel engines
   b. truck transmission and drive trains
   c. fuel systems, and other engine accessories
3. diagnose equipment failure, isolate faulty systems or components, and make necessary repairs.
4. interpret wiring diagrams, test and make repairs to starting, charging, lighting, and accessory systems on vehicles.
5. use elementary math operations (addition, subtraction, multiplication, division) including decimals, fractions, and conversions, as they apply to diesel mechanics.
6. write clear, concise, and accurate abstracts and reports.
7. demonstrate safe work habits and describe their importance as they apply to industry and OSHA.
8. demonstrate an attitude of responsibility toward the diesel service and manufacturing industry and the world of work.

Dietetic Technician (DT)
Associate Degree/Two Years

The Dietetic Technician Program is a study of food production, patient nutritional care and dietary administration as it relates to health care institutions. The students concentrate on the normal and therapeutic needs of humans, food production, planning and sanitation, as well as management skills and accounting.

Types of Jobs: Middle managers in dietary departments of health care institutions. Responsibilities include supervision of production and tray service to patients. Assist dietitians in patient contact, nutritional status and care data, as well as employee supervision and training. May also be employed as school cafeteria directors or in commercial quantity food production.

Required High School Courses: One unit of high school biology or chemistry, and high school math. For exception, see pg. 7.

*GENERAL ELECTIVES are courses chosen from outside your program of concentration.

FIRST SEMESTER

			Credits
FHD	111	Introductory Foods	3
FHD	112	Nutrition	3
FHD	113	Health Field Experience I (32 Hr.)	1
FHD	234	Health Care Delivery Systems	3
ENL	111	English Composition I	3
PSY	111	General Psychology	
		or	3
PSY	231	Educational Psychology	
PED		Physical Education	1
			17

SECOND SEMESTER

			Credits
FHD	121	Quantity Food Preparation	3
FHD	122	Diet Therapy	3
FHD	123	Health Field Experience II (112 Hr.)	3
FHD	125	Menu Planning and Cost Control	3
BIO	299	Physiology	3
PED		Physical Education	1
			16

SUMMER TERM

FHD 253 Food & Hospitality Work Experience
—120 Hr. Dietary Experiences (No Credit)

THIRD SEMESTER

			Credits
FHD	115	Purchasing, Storage and Sanitation	3
FHD	233	Health Field Experience III (112 Hr.)	3
FHD	235	Supervision, Work Simplification & Incentives	3
ENL	121	English Composition II	3
SOC	111	Introduction to Sociology	3
			15

FOURTH SEMESTER

			Credits
FHD	243	Health Field Experience IV (112 Hr.)	3
FHD	245	Equipment and Layouts	3
FHD	246	Hospitality Merchandising	3
ACC	121	Elementary Accounting	3
		Elective-General*	3
			15

PROGRAM OBJECTIVES

The general objective of the Dietetic Technician program is to prepare students for employment in medical care institutions in diet planning, kitchen supervision, and patient education. The program is designed to satisfy regulatory agency requirements for Dietetic Technicians and also allows students to continue their education toward a baccalaureate degree.

The Dietetic Technician graduate should be able to:

1. demonstrate proper techniques of food preparation and food handling sanitation.
2. plan and carry out the management of work schedules, job descriptions, menu planning, purchasing, portion control, and patient tray and cafeteria service.
3. describe equipment available on the market, and plan arrangement, operation, and maintenance for efficiency and safety.
4. demonstrate creative and thorough thinking in personnel evaluations and in solving management problems.
5. display knowledge and practice of adequate professional appearance, and appropriate attitude and standards.
6. describe the physiological effects of food in the human body.
7. show signs of developing a sense of worth and responsibility, not only as a dietetic technician, but in the community.
8. demonstrate ability to communicate clearly, both orally and in writing, to fellow employees and patients.
9. demonstrate understanding of financial and budgetary controls in health care institutions.
10. assist with dietary clerical records.
11. demonstrate working knowledge of therapeutic diets, their preparation, and methods for training patients to follow them.
12. demonstrate knowledge of the responsibilities of a dietitian, and identify areas in which he/she may be of assistance, and areas in which he/she should ask for consultation.
13. apply knowledge of physical activities and sports for the maintenance of good health.

Electrical Construction (EW)
Certificate/Two Years

This program stresses the manual skills needed to install wiring and electrical equipment, using blueprints, in buildings. Required courses in mathematics, science, and communications enhance the student's vocational opportunities.

Types of Jobs: Electrical construction union apprentice, industrial maintenance, self-employment in residential and commercial wiring and in electrical shops, electrical tester or inspector, power company employee.

FIRST SEMESTER

			Hours
ELC	711	Direct Current Fundamentals	160
ELC	712	Basic Wiring Lab	96
ELC	713	Motor Rewinding I	96
ENL	711	Communications	48
MTH	710	Technical Mathematics I	48
			448

SECOND SEMESTER

			Hours
ELC	721	Basic Motor Control	96
ELC	722	Alternating Current Fundamentals	160
ELC	723	Residential Blueprint and Code	64
ELT	113	Accident Prevention	32
MTH	100	Technical Mathematics II	48
		Optional Elective	0/48
			400/448

THIRD SEMESTER

			Hours
ELC	832	Advanced Motor Control	96
ELC	833	Basic Electrical Construction Lab	112
ELC	834	Basic Electronics for Industry	160
EDT	102	Engineering Drafting	64
PHS	700	Physics Survey	48
			480

FOURTH SEMESTER

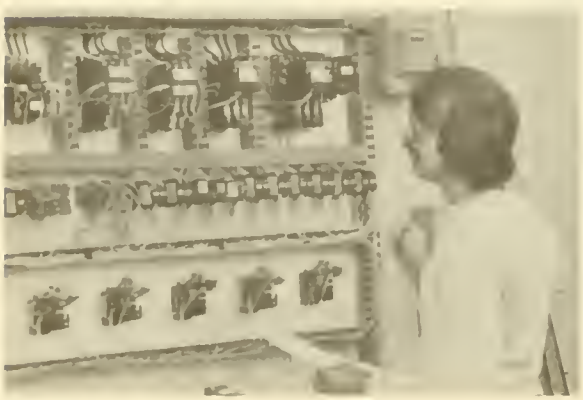
			Hours
ELC	843	Industrial Motor Control	96
ELC	844	Commercial & Industrial Blueprint Reading	64
ELC	845	Advanced Electrical Construction	144
ELC	846	Electrical Machinery, Analysis and Repair	128
		Optional Elective	0/48
			432/480

PROGRAM OBJECTIVES

This program will prepare the graduate for employment in the field of residential, commercial, or industrial electrical construction and maintenance.

A graduate of the Electrical Construction program should be able to:

1. demonstrate the ability to function in a variety of environments, using the accepted safety procedures and work quality standards of the trade.
2. demonstrate familiarity with the interdisciplinary skills of electrical theory, mathematics, and physics, and be able to utilize these skills as they relate to the construction and operation of electrical systems.
3. identify and demonstrate correct use and care of the tools and materials utilized in the trade, and be capable of correctly requisitioning them from a stockroom or supplier.
4. demonstrate basic knowledge of reading and developing blueprints, and be capable of using this information to perform actual installations which comply with the National Electrical Code.
5. interpret ideas and formulate plans through communication with others.
6. operate, maintain, and repair rotating electrical machines.
7. demonstrate working knowledge of electrical construction procedures in the areas of residential, commercial, and industrial installations.
8. demonstrate the use of troubleshooting equipment and standard testing procedures.
9. operate and maintain electrical control systems.
10. demonstrate knowledge of basic electronic control circuitry, devices, and schematic diagrams.



Electrical Technology (EL)
Associate Degree/Two Years

This program prepares the student to work as an electrical technologist with electronic equipment and electrical machinery. It stresses electrical basics, including theory, circuits, industrial electronics, electrical machinery, and electrical construction. Required courses in mathematics, science and communications enhance the student's vocational opportunities.

Types of Jobs: Electrical technology and laboratory work, industrial maintenance technician, troubleshooter for electrical equipment manufacturers.
High School Subjects Required: Two years of algebra, one year of science. For exception, see pg. 7.
*GENERAL ELECTIVES are courses chosen from outside your program of concentration

FIRST SEMESTER

			Credits
ELT	111	Direct Current Fundamentals	5
ELT	112	Basic Wiring Lab	3
ELT	113	Accident Prevention	2
ENL	111	English Composition I	3
MTH	103	College Algebra	3
PED		Physical Education	1
			17

SECOND SEMESTER

			Credits
ELT	121	Residential Blueprint Reading National Electrical Code	4
ELT	122	Alternating Current Fundamentals	5
ELT	123	Basic Electrical Construction Lab	2
ENL	121	English Composition II	3
MTH	104	College Trigonometry	3
			17

THIRD SEMESTER

			Credits
ELT	233	Basic Electronics	6
ELT	234	Electrical Motor Control	4
PHS	100	Physics-Mechanics	4
PED		Physical Education	1
		Elective-General*	3/4
			18/19

FOURTH SEMESTER

			Credits
ELT	241	Electrical Systems Analysis	2
ELT	242	Electrical Construction Blueprint Reading	4
ELT	244	Advanced Electrical Theory	3
ECO	201	Principles of Economics	3
PHS	101	Physics-Heat and Light	4
			16

PROGRAM OBJECTIVES

This program will equip the student with the skills necessary to understand and apply the theory related to the field of electrical technology. The program structure encompasses both manual and theoretical aspects of the trade, and prepares students for the option of continuing their education toward a baccalaureate degree.

Upon completion of the program, the graduate should be able to:

1. demonstrate the ability to perform in a variety of electrical fields at a highly technical level, and apply accepted safety standards and the most recent developments in the electrical industry.

2. demonstrate the ability to use algebra, trigonometry, and physics in the design, development, and analysis of electrical and electronic circuits and systems.

3. compile parts lists and order forms which demonstrate knowledge of catalogs, coding, and numbering of components, devices, hardware, and materials.

4. display the ability to interpret and develop blueprints, schematic diagrams, and wiring diagrams, and transform them into functional systems that comply with the National Electrical Code and/or other specs.

5. generate complete and concise evaluations of electrical and electronic circuits and systems, and communicate that information verbally and/or in writing to others in or out of the field.

6. possess basic knowledge of construction procedures and electrical wiring techniques.

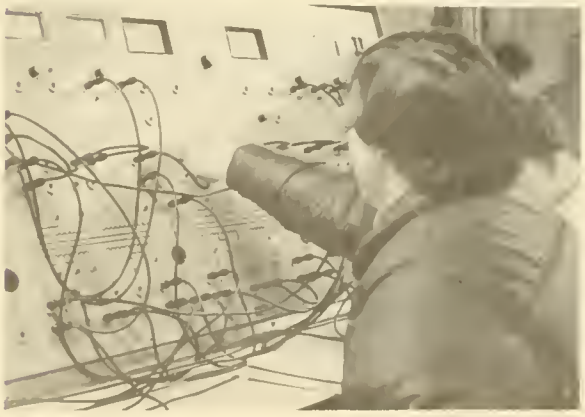
7. demonstrate knowledge of test equipment, instrumentation, and electrical/electronic theory, including complex numbers and network theorems used to analyze, troubleshoot, repair, and operate electrical/electronic circuits, systems, and equipment.

8. demonstrate knowledge of the theory and mechanics of rotating machinery, static and logic control circuitry, transformer banks, and instrumentation.

9. demonstrate decision-making preocesses and the need for interpersonal competition and individual growth.

10. describe United States business cycles, investments, and personnel policies and procedures and their relationship to the electrical industry.

11. recognize the need for physical fitness and lifelong recreational activities.



Electronics Program (ES)
Special Program
Lewisburg Federal Penitentiary

FIRST SEMESTER

			Credits
ENT	111	Electronics—Theory I	5
ENT	112	Electronics—Applications I	3
ENT	113	Electrical Circuit Analysis	3
MTH	103	College Algebra	3
			14

SECOND SEMESTER

			Credits
ENT	122	Electronics—Theory II	5
ENT	123	Electronics—Applications II	3
ENT	124	Basic Electronics Circuit Analysis	3
ENT	129	Power Transmission Fundamentals	3
		Optional Elective	0/3
			14/17

Electronics Technology (ET)
Associate Degree/Two Years

This program presents basic electronics theories and their application to current practices and future developments. Practical laboratory work with modern electronic equipment prepares the student to assist electronic engineers in the design, construction, installation and testing of all kinds of electronic equipment.

Types of Jobs: Electronics engineering technician, electronic instrument technician, electronic lab technician, industrial electronics technician, production technician, and technical writer.
High School Subjects Required: Two years of algebra, one year of science. For exception, see pg. 7.
*GENERAL ELECTIVES are courses chosen from outside your program of concentration.

FIRST SEMESTER

			Credits
ENT	111	Electronics—Theory I	5
ENT	112	Electronics—Applications I	3
ENT	113	Electrical Circuit Analysis	3
ENL	111	English Composition I	3
MTH	103	College Algebra	3
			17

SECOND SEMESTER

			Credits
ENT	122	Electronics—Theory II	5
ENT	123	Electronics—Applications II	3
ENT	124	Basic Electronics Circuit Analysis	3
ENL	121	English Composition II	
		or	3
ENL	201	Technical Writing	
MTH	104	College Trigonometry	3
			17

THIRD SEMESTER

			Credits
ENT	233	Electronics—Theory III	5
ENT	234	Electronics—Applications III	3
ENT	235	Intermediate Electronics Circuit Analysis	3
PED		Physical Education	1
		Elective-Math/Science	3/4
			15/16

FOURTH SEMESTER

			Credits
ENT	244	Electronics—Theory IV	5
ENT	245	Electronics—Applications IV	3
PED		Physical Education	1
		Elective-Electronics	3
		Elective-General*	3/4
			15/16

PROGRAM OBJECTIVES

The overall goal of the Electronics Technology program is to prepare the student to obtain employment as an electronic technician in the electronic or related industries.

A graduate should be able to:

1. employ basic knowledge of AC and DC electricity.
2. demonstrate the operation of solid state devices and tubes.
3. describe the theory of various electronic communication systems.
4. analyze circuits containing various types of electronic devices.
5. demonstrate basic knowledge of digital electronics, logic circuits, and microprocessors.
6. solve mathematical problems relating to circuit analysis, digital electronics, and other electronic systems.
7. communicate verbally with others and write technical reports.
8. operate laboratory type cathode ray oscilloscopes.
9. operate parameter measuring equipment and signal generating equipment.
10. program microprocessor based instruments.
11. establish good working relationships with fellow workers and society.
12. apply knowledge of physical activities for the maintenance of good health.
13. describe contributions of our cultural heritage and illustrate the responsibilities of a good citizen.

Engineer In Training (EIT)
Exam Preparation

The Engineer in Training Program is a non-degree, non-certificate program. The purpose of the program is to prepare individuals, through a series of courses, to take the EIT examination. The EIT exam is one step in the process of being registered as a professional engineer in the State of Pennsylvania. These courses are open to anyone who desires to take the examination. Courses offered are:

Course Title	Course Number
STATICS	EIT 201
STRENGTH OF MATERIALS I	EIT 202
DYNAMICS	EIT 203
FLUID MECHANICS	EIT 204
STRENGTH OF MATERIALS II	EIT 205
ENGINEERING ECONOMICS	EIT 206
ENGINEERING CHEMISTRY	EIT 207
THERMODYNAMICS	EIT 208
ENGINEERING PHYSICS	EIT 209
ENGINEERING ELECTRONICS	EIT 210

Engineering Drafting Technology (ED)
Associate Degree/Two Years

This program prepares the student to make a variety of engineering drawings and calculations. It provides a broad knowledge of mechanical drafting and engineering procedures, and background skills in mathematics, science and communication.

Types of Jobs: Mechanical detail and layout drafting, engineering assistant or aide, checker, field department supervisor, or jobs in related areas such as planning, traffic safety, maintenance, and purchasing.

Required High School Subjects: Two years of algebra, one year of science. For exception, see pg. 7

FIRST SEMESTER

			Credits
EDT	106	Industrial Processes	2
EDT	111	Basic Drafting I (8 weeks)	4
EDT	112	Basic Drafting II (8 weeks)	4
ENL	111	English Composition I	3
MTH	103	College Algebra	3
PED		Physical Education	1
			17

SECOND SEMESTER

			Credits
EDT	121	Power Transmission (8 weeks)	4
EDT	122	Mechanisms (8 weeks)	4
ENL	121	English Composition II	3
MTH	104	College Trigonometry	3
PED		Physical Education	1
			15

THIRD SEMESTER

			Credits
EDT	231	Detail & Assembly Drawings (8 weeks)	4
EDT	232	Applied Drafting Techniques (8 weeks)	4
PHS	100	Physics-Mechanics	4
		Elective	3/4
			15/16

FOURTH SEMESTER

			Credits
EDT	241	Advanced Detail I (8 weeks)	4
EDT	242	Advanced Detail II (8 weeks)	4
PHS	106	Introduction to Metallurgy	4
		Elective* (Below)	3/4
			15/16

*Electives

EDT	201	Descriptive Geometry	3
MTH	238	Calculus I	4
PHS	102	Physics-Electricity/Magnetism	4

PROGRAM OBJECTIVES

The general objective of the program is to prepare the student with the skills and competencies necessary for entry-level employment in the engineering drafting field in various capacities.

A graduate of this program should be able to:

1. apply the basic elements of drafting.
2. analyze and design simple power transmission installations.
3. make detail and assembly drawings.
4. detail casting drawings from sketches and models.
5. redesign castings into weldment drawings.
6. draw the various methods of piping.
7. detail assembly and sub-assembly drawings from layouts.
8. describe and apply the various methods of manufacturing as they relate to engineering drafting.
9. describe and apply principles of physics and metallurgy to engineering drafting.
10. utilize the appropriate mathematical skills and competencies to solve applied problems in engineering drafting.
11. communicate effectively in small group and interpersonal situations that may occur in industry.
12. function as an informed and participating citizen in a democratic society through exposure to the humanities and social sciences.
13. utilize and develop the fundamental skills provided through exposure to lifetime sports.

Floriculture (FL)
Ornamental Horticulture Technology (OH)
Associate Degree/Two Years

This program involves the business of growing, designing, and selling flowers, foliage, and related materials. It is directed toward employment with florists in planning, growing, designing, managing, and selling floral products and services.

Types of Jobs: Flower propagation; flower sales, both retail and wholesale; flower shop management; assisting in plant pathology; own business.
*GENERAL ELECTIVES are courses chosen from outside your program of concentration.

FIRST SEMESTER

			Credits
OHT	114	Horticulture Soils	3
OHT	115	Woody Plants I	2
OHT	116	Herbaceous Plants	3
BIO	111	Basic Botany	3
ENL	111	English Composition I	3
MTH	100	Technical Mathematics II	3
			17

SECOND SEMESTER

			Credits
FLR	121	Greenhouse Crop Production I	3
FLR	122	Floral Design I	3
CHM	100	Fundamentals of Chemistry	
		or	4
CHM	105	General Organic Chemistry	
ENL	121	English Composition II	3
PED		Physical Education	1
			14

THIRD SEMESTER

			Credits
FLR	232	Greenhouse Crop Production II	3
FLR	233	Floral Design II	3
OHT	234	Plant Propagation	3
OHT	239	Plant Insects and Diseases	3
PED		Physical Education	1
		Elective-General*	3/4
			16/17

FOURTH SEMESTER

			Credits
FLR	243	Greenhouse Crop Production III	3
FLR	244	Flower Shop Operation	3
FLR	245	House & Conservatory Plants	3
DHT	246	Horticulture Mechanics	3
		Elective-General*	3/4
			15/16

PROGRAM OBJECTIVES

The goal of the Floriculture program is to prepare the student to obtain employment, or to be self-employed in the retail florist and greenhouse industry or related businesses.

A graduate of Floriculture should be able to:

1. interpret basic knowledge of botany, chemistry, and horticulture soils as they relate to plant growth and culture.
2. identify the communication skills necessary to organize thoughts and ideas and demonstrate the ability to communicate, orally and in writing, in a manner that can be easily understood.
3. solve mathematical problems relating to the use of soil amendments, fertilizers, and plant growth control chemicals, and demonstrate proper cost estimating, pricing, and record keeping.
4. identify common trees, shrubs, ground covers, and various annuals, biennials, and perennials by botanical and common names, and describe the outstanding characteristics of each; summarize landscape, garden center, and greenhouse use and cultural requirements of these species.
5. select the proper procedures, define the physiological basis, and describe practical applications of the reproduction of plants by asexual and sexual methods.
6. describe proper design and operation of greenhouse environmental systems, and appraise their advantages and disadvantages for commercial production.
7. summarize and assess cultural requirements for commercial production of greenhouse crops, and economically produce a crop from seed or cutting to harvest and sales.
8. prepare salable floral designs of fresh, dried, and artificial flowers using design guidelines and within time and price requirements of the retail florist industry.
9. outline the management requirements of a flower shop, including record keeping and employee/employer relations, and demonstrate proper construction, selling, and servicing of arrangements and accessories for special occasions.
10. identify and describe the effect of insects, disease, and physiological problems on plants, plan for proper control of these problems, and obtain the Pennsylvania Private Applicator's License.
11. demonstrate an understanding of the operation and repair of equipment and mechanical systems utilized in the floriculture industry.
12. demonstrate a responsible attitude in personal relationships with employers, fellow employees, and the world of work.
13. identify foliage plants commonly used indoors by botanical and common names, state distinguishing characteristics of each, and describe their use and culture in various indoor landscape areas.
14. demonstrate an appreciation of physical fitness and lifelong recreational activities.

Food and Hospitality Management (FH)
Associate Degree/Two Years

This program includes academic classroom study as well as practical laboratory work in the areas of business and personnel management, food preparation and supervision, and related subjects. Guest speakers, field trips, and directed community field work experiences enlarge student opportunities for learning.

Types of Jobs: Food service supervisory positions in restaurants, clubs, hospitals, nursing homes, child care centers, schools, and colleges; front office or housekeeping manager in hotels and motels.
*GENERAL ELECTIVES are courses chosen from outside your program of concentration.

FIRST SEMESTER

			Credits
FHD	111	Introductory Foods	3
FHD	112	Nutrition	3
MGT	110	Principles of Business	3
ENL	111	English Composition I	3
PSY	111	General Psychology	3
PED		Physical Education	1
			16

SECOND SEMESTER

			Credits
FHD	121	Quantity Food Preparation	3
FHD	125	Menu Planning and Cost Control	3
FHD	126	Front Office Management & Housekeeping	3
ENL	121	English Composition II	3
PED		Physical Education	1
		Elective-General*	3
			16

PRACTICUM – SUMMER TERM

FHD	253	Food & Hospitality Work Experience – (120 Hr.) No Credit

THIRD SEMESTER

			Credits
FHD	115	Purchasing, Storage, and Sanitation	3
FHD	230	Hospitality Management & Theory	3
FHD	235	Supervision, Work Simplification & Incentives	3
MGT	230	Business Communications	3
		Elective-Science	3/4
			15/16

FOURTH SEMESTER

			Credits
FHD	246	Hospitality Merchandising	3
FHD	241	Beverage Management & Catering	3
FHD	245	Equipment and Layouts	3
ACC	121	Elementary Accounting	3
		Elective-General*	3
			15

PROGRAM OBJECTIVES

The general objective of the Food and Hospitality Management program is to prepare students for employment in food service management positions in retaurants, schools, institutions, and catering operations. Options within the program allow students to prepare for employment in front office and housekeeping positions in hotels and motels or to qualify to continue their education toward a baccalaureate degree.

Upon completion of the program, the student should be able to:

1. demonstrate proper techniques of food preparation and food handling sanitation.
2. plan and carry out the management of work schedules, job descriptions, menu planning, purchasing, portion control, and dining room and cafeteria service.
3. describe the equipment available on the market and plan arrangement, operation, and maintenance for efficiency and safety.
4. demonstrate creative, thorough thinking in solving management problems and in merchandising techniques.
5. display knowledge and practice of professional appearance, attitude, and standards.
6. describe the physiological effects of food in the human body.
7. show signs of developing a sense of worth and responsibility, not only in the food service business, but in the community.
8. communicate clearly, both orally and in writing.
9. demonstrate the ability to keep accurate food business records and have a proper perspective on the relation between financial profits and good business ethics.
10. plan and carry out catered events and apply knowledge of all types of beverages.
11. identify general business practices in the United States.
12. demonstrate working knowledge of front office practice and housekeeping procedures (students who select the lodging option).
13. apply knowledge of physical activities and sports for the maintenance of good health.

Food Service Management (FM)
Special Program
Lewisburg Federal Penitentiary

FIRST SEMESTER (16 weeks)

			Credits
FHD	112	Nutrition	3
FHD	125	Menu Planning & Cost Control	3
FHD	245	Equipment and Layouts	3
ENL	111	English Composition I	3
			12

SECOND SEMESTER (16 weeks)

			Credits
FHD	115	Purchasing, Storage, and Sanitation	3
FHD	235	Supervision, Work Simplification & Incentives	3
FHD	246	Hospitality Merchandising	3
ACC	112	Accounting I	3
			12

Forest Technology (FR)
Associate Degree/Two Years

This program includes basic forestry techniques, activities and field work. It provides sufficient general academic courses and specialized forestry courses to prepare the student to occupy a responsible position between the skilled forest worker and the professional forester.

Types of Jobs: In public agencies – Forest fire control; wildlife habitat improvement; maintenance of forest roads, structures, and recreation areas; timber estimation; timber marking; stand improvement.
In private employment – Pulpwood procurement; timber estimating; planning and construction of forest roads; supervision of logging operations; location and survey of forest property lines.
Required High School Subjects: Two years of algebra, one year of science. For exception, see pg. 7.
*GENERAL ELECTIVES are courses chosen from outside your program of concentration.

FIRST SEMESTER

			Credits
FOR	111	Dendrology	3
FOR	113	Forest Mensuration	3
FOR	115	Forest Botany	3
ENL	111	English Composition I	3
MTH	103	College Algebra	3
PED		Physical Education	1
			16

SECOND SEMESTER

			Credits
FOR	121	Photogrammetry & Forest Surveying I	3
FOR	124	Advanced Forest Mensuration	3
FOR	126	Forest Ecology/Wildlife Management	3
ENL	121	English Composition II	3
MTH	104	College Trigonometry	3
PED		Physical Education	1
			16

THIRD SEMESTER

			Credits
FOR	232	Forest Surveying II	3
FOR	233	Equipment and Machinery	3
FOR	234	Timber Harvesting	3
FOR	236	Silviculture	3
MGT	110	Principles of Business	3
			15

FOURTH SEMESTER

			Credits
FOR	242	Forest Products	3
FOR	247	Forest Land Management & Recreation	3
FOR	248	Forest Protection	3
ECO	201	Principles of Economics	3
		Elective-General*	3/4
			15/16

PROGRAM OBJECTIVES

The general objective of the Forest Technology program is to prepare the student to obtain employment as a forest technician in public and private sectors of forestry and related fields.

The graduate of the Forest Technology program should be able to:

1. write accurate technical reports using proper language structure and demonstrate skill in basic oral communication.
2. identify selected species of trees and shrubs by their scientific and common names, general uses, site associations and general distribution.
3. demonstrate the fundamentals of plane surveying, including the use and care of equipment, maps and map making, and the theory of measurements.
4. measure the volume of standing timber and volume of products removed from the forest.
5. prepare a forest land management plan for given property using the concepts of multiple use and sustained yield forest management.
6. demonstrate proficiency in understanding the silvicultural treatments used to regulate stand composition, regenerate stands, increase growth rates and improve timber quality.

7. demonstrate the basic theories, principles, and techniques employed in timber harvesting and demonstrate proficiency in the operation and maintenance of the tools and equipment used to harvest a forest crop.

8. analyze the interrelationships among humans, other organisms, and the forest environment.

9. describe the life history, food requirements, and distribution of the major game and non-game birds and mammals of Pennsylvania.

10. identify and describe the function of tree parts and related plants and describe their relationship to soil.

11. describe the processing operations, properties, and uses of various forest products and identify and describe the properties and structure of wood.

12. describe the characteristics and control of various forest pests, diseases, and fire problems.

13. utilize the appropriate mathematical skills and competencies to solve applied problems in the field of forestry.

14. develop fundamental skills in lifetime sports.

15. demonstrate an attitude of responsibility required for successful relationships with employers, fellow employees, and the world of work.

Graphic Arts (GA)
Associate Degree/Two Years

This program provides a firm understanding of highly diversified backshop operations along with management, marketing, and supervisory training. Practical laboratory work with modern graphic arts equipment gives a background in areas of composition, makeup, photo process, imposition and stripping, platemaking, presswork, and bindery.

Types of Jobs: Graphic arts executive training, in-plant supervisors, self-employed printer, marketing and technical sales service.
Required High School Subjects: Two years of algebra, one year of science. For exception, see pg. 7.
*GENERAL ELECTIVES are courses chosen from outside your program of concentration.

FIRST SEMESTER

			Credits
GCO	511	Layout and Design	4
GCO	512	Typographic Composition	4
ENL	111	English Composition I	3
SEC	709	Typewriting	1
MTH		Math Elective*	3
PED		Physical Education	1
			16

SECOND SEMESTER

			Credits
GCO	521	Process Camera	4
GCO	522	Film Assembly & Imposition	4
ENL	121	English Composition II	
		or	3
ENL	201	Technical Writing	
MGT	247	Small Business Management	3
PED		Physical Education	1
			15

THIRD SEMESTER

			Credits
GCO	631	Platemaking, Substrates & Finishing	4
GCO	632	Press Operations	4
GCO	635	Printing Estimating Practices	3
CHM	299	Chemistry of Lithography	3
		Elective	3
			17

FOURTH SEMESTER

			Credits
GCO	641	Advanced Typographic Composition	3
GCO	642	Advanced Process Camera	3
GCO	645	Printing Processes	3
CSC	118	Fundamentals of Computer Science	3
		Elective	3
			15

*MTH 101 Introduction to Mathematics, MTH 102 Introduction to Mathematics II, MTH 103 College Algebra, MTH 104 College Trigonometry

PROGRAM OBJECTIVES

The general objective of this program is to provide a firm understanding of highly diversified backshop operations and to prepare the graduate for employment. Related courses and electives are included to increase opportunities for advancement and enable the graduate to qualify for continuing education toward a baccalaureate degree.

A graduate of the Graphic Arts program should be able to:

1. recognize the major printing processes, their respective products, and the relative merits of each process.
2. perform in the areas of layout and design, copy preparation and composition, continuous tone and reproduction photography, stripping, platemaking, presswork and finishing with a level of proficiency suitable for job entry as an advanced learner.
3. relate technical knowledge to the areas listed above in order to make rational decisions.
4. appraise his/her abilities and limitations in the various areas comprising graphic arts.
5. demonstrate the personal traits of promptness, willingness to work, and the ability to accept supervision.
6. demonstrate respect for equipment and use appropriate safety precautions when working around such equipment.
7. compare production departments and the contributions each makes to the total product.
8. identify the problems of owning and operating a business.
9. describe basic chemistry principles and apply them to graphic arts.
10. solve basic mathematical problems related to graphic arts.
11. write clear, concise, legible, and accurate technical reports using proper language structure.
12. demonstrate skill in basic oral communication and ability to speak logically using various types of oral communication techniques.
13. demonstrate knowledge of the rules and techniques of a life-time sport which will provide recreation and promote physical fitness.

Industrial Technology (IT)
Associate Degree

A minimum of sixty credits, carefully selected by the student and his/her advisor, will qualify the student for the Associate Degree. As many as thirty credits may be awarded by advanced placement, credit by examination, or life experience, thus eliminating much of the course work to be completed on campus.

The minimum requirements for the Associate Degree in Industrial Technology are:

	Credits
English	6
Mathematics	9
*Natural Sciences	6/8
Social Sciences and Humanities	12
**Electives	27
	60/62

Final approval of all courses will be given by the advisor and Division Director.

*Natural Science credits in excess of six may be substituted as electives.

**Courses should be geared primarily toward the student's vocational goals and/or a specialized area of concentration.

PROGRAM OBJECTIVES

The general objective of the Industrial Technology program is to enable the employed person to upgrade himself/herself, whether for personal or professional reasons.

This program has been designed to be flexible; it can be tailored to fit the student's personal requirements as they relate to present employment and long-term career plans. It is also appropriate for transfer for advanced study.

The graduate should be able to:

1. demonstrate potential for growth through the use of skills and competencies acquired.
2. formulate ideas logically, and organize them into a productive plan to accomplish a chosen goal.
3. demonstrate increased vocational knowledge and skills.
4. illustrate an attitude of responsibility to self, employer, and community.
5. communicate effectively in interpersonal and job- related activities.
6. demonstrate comprehensive knowledge of communicative and mathematical skills.
7. apply general knowledge of the social and natural sciences and possess an awareness of their effect on our environment.
8. identify the need for physical fitness and positive leisure activities.

Journalism (JO)
Associate Degree/Two Years

Practical courses in news and feature story writing, news photography, editing, copy writing, and community responsibility are taught. Background courses in history, government, economics, sociology, and psychology are included in the program.

Types of Jobs: Newspaper reporter, advertising copywriter, public relations assistant, news photographer, magazine research assistant.
*GENERAL ELECTIVES are courses chosen from outside your program of concentration.

FIRST SEMESTER

			Credits
JOU	111	News Writing	3
ENL	111	English Composition I	3
ENL	202	Fundamentals of Speech	3
GOV	231	American Government-National	3
SEC	111	Typewriting I	3
			15

SECOND SEMESTER

			Credits
JOU	112	Photography for Newspapers	2
JOU	121	News Reporting	3
JOU	122	In-Service Training I	2
GOV	241	State & Local Government	3
SOC	111	Introduction to Sociology	3
		Elective-General*	3
			16

THIRD SEMESTER

			Credits
JOU	231	Feature Writing	3
JOU	232	Editing	3
JOU	233	In-Service Training II	2
ECO	201	Principles of Economics	3
PED		Physical Education	1
		Elective-General*	3/4
			15/16

FOURTH SEMESTER

			Credits
JOU	241	Newspaper Management & Community Responsibility	3
JOU	242	In-Service Training III	2
ADV	101	Principles of Advertising	3
ESC	100	Environmental Science	3
PSY	111	General Psychology	3
PED		Physical Education	1
		Elective-General*	3/4
			18/19

PROGRAM OBJECTIVES

The general objective of the Journalism program is to prepare students for employment in the journalism field in the small or middle size operation.

The graduate should be able to:

1. state the responsibilities of the media in America, the responsibilities of individuals with specialized media training, and apply knowledge of government and economics in relationship to the media industry.
2. state ethical and legislative laws which govern the production of mass media and correlate personal responsibility to those laws.
3. state standards and goals, both philosophical and practical, of various forms of mass media.
4. list interrelationships of mass media with various kinds of communities; e.g., geographical, industrial, etc.
5. interview, research, correlate material and write feature or in-depth articles for publication and apply general knowledge of physical and social sciences to such writing.
6. produce public relations material to include articles and basic photographic assignments.
7. state relationship of photographs with news, advertising, and public relations material as well as perform basic photographic assignments.
8. list differences in types of writing for various forms of mass media including newspapers, magazines, trade journals, house organs, etc.
9. delineate the roles of individuals on publications' staffs.
10. explain the relationship of publications and publication budgets as they pertain to operation of a business.
11. differentiate between objective, non-objective, biased, persuasive, and other forms of writing for mass media as well as communicate clearly both orally and in writing.
12. coordinate and implement organization and production of club bulletins, house organs, and similar small publications.
13. assist in production of advertising copy and layout for small publications or small advertising agency.
14. demonstrate knowledge of a lifetime sport which will provide recreation and promote physical fitness.

Machine Tool Technology (TT)
Associate Degree/Two Years

This program prepares the student to work with the engineer and shop superintendent. Laboratory and shop work provide training in machine operation and theory, blueprint reading, and mechanical drawing. Routing of jobs and the sequence of operations, as well as related courses in mathematics, science and economics are included to increase the student's advancement opportunities.

Types of Jobs: Toolmaker; experimental, numerical controller; production technician; administrative assistant.
Required High School Subjects: Two years of algebra, one year of science. For exception, see pg. 7.

FIRST SEMESTER

			Credits
MTT	511	Machining I	5
MTT	512	Machining II	5
ENG	111	English Composition I	3
MTH	103	College Algebra	3
PED		Physical Education	1
			17

SECOND SEMESTER

			Credits
MTT	521	Automatic Machines	5
MTT	522	Industrial Metrology	5
ENL	121	English Composition II	3
MTH	104	College Trigonometry	3
			16

THIRD SEMESTER

			Credits
MTT	631	Tooling Technology I	5
MTT	632	Tooling Technology II	5
PHS	100	Physics-Mechanics	4
EDT	101	Mechanical Drawing	2
			16

FOURTH SEMESTER

			Credits
MTT	641	Abrasive Machining	5
MTT	642	Heat Treatment and Cutter Grinding	5
PHS	106	Introduction to Metallurgy	4
PED		Physical Education	1
			15

PROGRAM OBJECTIVES

The overall objective is to prepare students for employment positions in the machine tool industry.

A graduate of the Machine Tool Technology program should be able to:

1. demonstrate safe working habits and a safe working attitude toward machinery and the machining field.
2. read blueprints, interpret drawings, understand specifications, and establish tolerances.
3. apply mathematics as it relates to the machine tool trade (speeds, feeds, thread measurement, sinebar, etc.).
4. apply the principles of physics and metallurgy to the science of heat treatment operations including:
   a. hardening of steel
   b. carburizing
   c. case hardening
   d. tempering
   e. annealing
5. operate basic machine tools and demonstrate knowledge of their construction as related to the metal industry.
6. describe the construction and operation of production machinery, including turret lathes, screw machines, automatic tappers, etc.
7. demonstrate skills on numerical control machine, electrical discharge machine, electrical chemical grinder, digital readout, diemaking, jig grinding, jigs and fixtures.
8. operate abrasive cutting machinery and select and plan machining operations on this equipment.
9. practice quality control, inspection, gaging methods, production control as related to the design functions and production of manufacturing.
10. demonstrate basic oral communication skills, speak logically, and use various types of oral and written communication techniques to promote good business contact, to develop leadership, and to establish good employer-employee-customer relationships.
11. demonstrate knowledge of a lifetime sport which will provide recreation and promote physical fitness.

Mechinist General (MG)
Certificate/Two Years

This program offers training on machine tools that are common to most shops and emphasizes skill with machines. Classroom analysis of various jobs and machine operations increases the student's capabilities as a machinist. General mathematics, science, and communications skills are included to help meet the demands of modern technical developments.

Types of Jobs: Machinist, machine repair mechanic, setup person for production line work, skilled toolroom mechanic.

FIRST SEMESTER

		Hours
MTT 511	Machining I	160
MTT 512	Machining II	160
MTH 710	Technical Math I	48
		368

SECOND SEMESTER

		Hours
MTT 521	Automatic Machines	160
MTT 522	Industrial Metrology	160
MTH 100	Technical Math II	48
		368

THIRD SEMESTER

		Hours
MTT 631	Tooling Technology I	160
MTT 632	Tooling Technology II	160
PHS 700	Physics Survey	48
ENL 711	Communications	48
		416

FOURTH SEMESTER

		Hours
MTT 641	Abrasive Machining	160
MTT 642	Heat Treatment and Cutter Grinding	160
EDT 101	Mechanical Drawing	64
		384

PROGRAM OBJECTIVES

The overall objective of this program is to prepare students for employment positions in the machining industry.

A graduate of the Machinist General program should be able to:

1. demonstrate safe working habits and a safety consciousness toward the operation of machine tools and equipment.
2. demonstrate working knowledge of blueprint reading and work from sketches of parts.
3. develop and use mathematical formula to compute coordinates and solve gearing and threading problems.
4. translate and apply basic knowledge of physics- mechanics to machine tool problems such as power transmission, machining, etc.
5. operate and set up basic machine tools.
6. operate machine tools to produce gears, threads, and gages.
7. operate and set up numerically controlled machines, electrical discharge, and electrical chemical machines.
8. operate various types of abrasive cutting machines, and practice heat treating of metals, such as hardening, annealing, and carburizing.
9. prepare and revise technical papers for shop use in the operation of machine tools and machining procedure.

Marketing/Merchandising (MM)
Associate Degree/Two Years

This program provides a strong background in the field of marketing, merchandising, retailing, and related business fields.

Types of Jobs: Retailers, buyers, wholesalers, purchasing agents, sales managers, salespersons, salesworkers, marketing managers, distribution managers.

FIRST SEMESTER

		Credits
ACC 112	Accounting I	3
MGT 110	Principles of Business	3
MGT 111	Business Mathematics	3
SEC 111	Typewriting I	3
ENL 111	English Composition I	3
PED	Physical Education	1
		16

SECOND SEMESTER

		Credits
MKT 243	Sales	3
ACC 122	Accounting II	3
CSC 118	Fundamentals of Computer Science	3
MGT 124	Office Procedures	2
MGT 230	Business Communications	3
MGT 231	Business Law I	3
PED	Physical Education	1
		18

THIRD SEMESTER

		Credits
MKT 234	Retail Merchandising I	3
MKT 240	Marketing	3
ECO 201	Principles of Economics	3
ENL 202	Fundamentals of Speech	3
	Elective-Social Science	3
		15

FOURTH SEMESTER

		Credits
MKT 244	Retail Merchandising II	3
MKT 246	Fashion Merchandising	3
ADV 101	Principles of Advertising	3
MGT 248	Supervision & Human Relations	3
	Elective	3
		15

PROGRAM OBJECTIVES

The general goal of the Marketing/Merchandising program is to prepare the graduate to obtain employment in middle management in the private sector of the retail and/or wholesale field. Alternatives may be to pursue advanced study or to add to the competencies of those currently employed in the field.

The graduate should be able to:

1. review and appraise the administrative processes and policies for marketing.
2. evaluate customer behavior and motivation as it applies to a profitable enterprise.
3. compose advertising campaigns using the media that is most effective in terms of cost, consumer appeal, and desired results.
4. distinguish the steps involved in identifying and segmenting a market.
5. relate in a positive manner to supervisors, peers, and subordinates on an interpersonal level.
6. demonstrate skill in effective oral and written communications.
7. apply analytical techniques in the preparation of financial statements and inventory systems.
8. demonstrate general knowledge of electronic data processing.
9. identify the legal aspects affecting business.
10. identify the need for physical fitness and positive leisure activities.

Mechanical Drafting (MD)
Certificate/Two Years

This program emphasizes drafting skills which will enable the student to produce drawings for modern industry. The student will learn the latest industrial processes to improve and enhance his/her drawings and insure efficiency.

Types of Jobs: Mechanical, sheet metal, piping, or electrical drafting; related jobs such as estimator or field erection supervisor.

FIRST SEMESTER

			Hours
MDT	711	Drafting Techniques I (8 weeks)	192
MDT	712	Drafting Techniques II (8 weeks)	192
ENL	711	Communications	48
MTH	710	Technical Mathematics I	48
			480

SECOND SEMESTER

			Hours
MDT	721	Applied Drafting I (8 weeks)	192
MDT	722	Applied Drafting II (8 weeks)	192
EDT	106	Industrial Processes	32
MTH	100	Technical Mathematics II	48
			464

THIRD SEMESTER

			Hours
MDT	831	Applied Drafting III (8 weeks)	192
MDT	832	Applied Drafting IV (8 weeks)	192
PHS	700	Physics Survey	48
			432

FOURTH SEMESTER

			Hours
MDT	841	Applied Drafting V (8 weeks)	192
MDT	842	Applied Drafting VI (8 weeks)	192
		Optional Elective	0/48
			384/432

PROGRAM OBJECTIVES

The general objective of this program is to prepare the student to obtain employment as a mechanical draftsperson.

A graduate of the Mechanical Drafting program should be able to:

1. describe an object using geometric construction and orthographic projection techniques.
2. draw and letter skillfully.
3. select the proper symbols necessary to represent commonly used drafting standards.
4. illustrate on a drawing the means used to transmit power mechanically, and describe the motions of a given design.
5. create from layout drawings the kinds of sub- drawings necessary for manufacturing, assembly, and installation information.
6. make a drawing in keeping with industrial process limitations.
7. incorporate in the dimensions the limitations necessary to guide the manufacturing processes based on the accuracy and quality of those processes.
8. apply engineering data to the drawings using mathematical calculations and basic laws of physics.
9. write accurate technical reports using standard English.
10. demonstrate an attitude of responsibility toward the tasks involved in mechanical drafting and a cooperative spirit toward each person associated with this work.

Nursery Management (NM)
Ornamental Horticulture Technology (OH)
Associate Degree/Two Years

This program prepares the student to propagate, grow to a commercial size and profitably sell the many species and varieties of woody plants. It also covers the identification of commercially important plants and the design, construction and maintenance of landscape plans and features.

Types of Jobs: Growing trees and shrubs with private nurseries, nursery stock salesperson or buyer, horticulturist with a governmental agency (city, state, federal), landscaping, and, ultimately, your own business.
*GENERAL ELECTIVES are courses chosen from outside your program of concentration.

FIRST SEMESTER

			Credits
OHT	114	Horticulture Soils	3
OHT	115	Woody Plants I	2
OHT	116	Herbaceous Plants	3
BIO	111	Basic Botany	3
ENL	111	English Composition I	3
MTH	100	Technical Mathematics II	3
			17

SECOND SEMESTER

			Credits
NMG	121	Nursery Production I	3
NMG	126	Woody Plants II	3
CHM	100	Fundamentals of Chemistry	
		or	4
CHM	105	General Organic Chemistry	
ENL	121	English Composition II	3
PED		Physical Education	1
			14

THIRD SEMESTER

			Credits
NMG	232	Nursery Production II	3
NMG	237	Woody Plants III	3
OHT	234	Plant Propagation	3
OHT	239	Plant Insects and Diseases	3
PED		Physical Education	1
		Elective-General*	3/4
			16/17

FOURTH SEMESTER

			Credits
NMG	245	Landscape Construction	3
NMG	248	Landscape Maintenance	3
NMG	249	Landscape Design	3
OHT	246	Horticulture Mechanics	3
		Elective-General*	3/4
			15/16

PROGRAM OBJECTIVES

The goal of the Nursery Management program is to prepare the student to obtain employment, or to be self- employed, in the areas of growing nursery crops, retail and garden center sales, landscape fields or related businesses.

A graduate of Nursery Management should be able to:

1. interpret basic knowledge of botany, chemistry, and horticulture soils as they relate to plant growth and culture.
2. identify the communication skills necessary to organize thoughts and ideas and communicate, orally and in writing, in a manner that can be easily understood.
3. solve mathematics problems relating to the use of soil amendments, fertilizers, and plant growth control chemicals, and demonstrate proper cost estimating, pricing, and record keeping.
4. identify deciduous trees and shrubs, narrow and broad-leaved evergreens, cultivars, and varieties by botanical and common name and point out their distinguishing characteristics, landscape uses and applications.
5. identify various annuals, biennials, and perennial herbaceous plants, and summa.ize landscape, garden center, and greenhouse use and cultural requirements of these plants.
6. describe the various types of nurseries, nursery growing structures, related facilities, equipment, and handtools and define proper location and design factors of nursery facilities.
7. demonstrate the commercial growing of plants in field and container operations on a scheduled production basis.
8. identify and describe the effect of insects, diseases, and physiological problems on plants, plan for proper control of these problems, and obtain the Pennsylvania Private Applicator's License.
9. select the proper procedures, define the physiological basis, and describe practical applications of the reproduction of plants by sexual and asexual methods.
10. demonstrate the proper and effective use of woody and herbaceous plant materials in developing public and domestic landscape areas.
11. prepare landscape construction features such as waterfalls, pools, steps, walks, walls, and patios using materials such as flagstone, brick, railroad ties, mountain stone, and epoxy stone.
12. identify and use procedures such as pruning, fertilizing, and spraying in the maintenance of existing landscapes.
13. demonstrate an understanding of the operation and repair of equipment and mechanical systems utilized in the nursery industry.
14. demonstrate a responsible attitude in personal relationships with employers, fellow employees, and the world of work.
15. demonstrate an appreciation of physical fitness and lifelong recreational activities.

Operating Room Technician (OT)
Certificate/One Year

Completion of this program enables the student to function under the direction of a Registered Nurse as a scrub or circulating technician on the operating room team during operations and includes the care, preparation, and maintenance of all sterile and unsterile supplies and equipment used in the operating room.

Types of Jobs: Member of surgical team in hospital operating rooms and central service departments or other areas closely concerned with the principles and practice of surgical asepsis.

FIRST SEMESTER

			Hours
ORT	710	Body Structure and Function	80
ORT	711	Operating Room Techniques I	320
		Optional Elective	0/48
			400/448

SECOND SEMESTER

			Hours
ORT	720	Operating Room Techniques II	64
ORT	721	Supervised Clinical Experience	416
			480

PROGRAM OBJECTIVES

The general program objective is to provide students with the academic and practical training to enable graduates to function as skilled technicians in a hospital operating room or central services department.

The Operating Room Technician graduate should be able to:

1. utilize background knowledge in the basic sciences, surgical anatomy, and aseptic technique, and demonstrate their application to surgery.
2. describe operating room technique and its relationship to good patient care in order to perform tasks as delegated and supervised by professional nursing personnel.
3. practice good personal hygiene and state its relationship to reducing the incidence of infection.
4. describe the relationship between the operating room and other departments of the hospital.
5. identify the need for adhering to hospital policies, and ethics, and medical, moral, and legal codes.
6. describe the essential nature of honesty in developing a rigid aseptic conscience, its application to the operating room and its relationship to an uncomplicated post-operative recovery for the patient.
7. adapt aseptic principles when encountering the unexpected emergency situation.
8. demonstrate knowledge and understanding of the demands of all surgical procedures in order to function as a member of the surgical team, giving appropriate service to the surgeon and thereby meeting the needs of the patient.
9. identify and describe the cost, preparation, use, care and after-care of equipment, instruments and supplies, and their importance to the safe and expeditious performance of surgical procedures.
10. demonstrate an awareness of the responsibilities and limitations of the role of the operating room technician, and be able to function within these limits.
11. state the extent of liability of operating room technicians and the importance of proper, adequate, direct supervision.
12. describe the organization of the hospital, the physical plant, and personnel requirements, practices, and policies.
13. practice economy of time, motion, and material as well as demonstrate accuracy, speed, emotional stability, and physical stamina.
14. demonstrate adequate consideration of the physical, spiritual, and emotional needs of the patient.

Plumbing and Heating (PL)
Certificate/Two Years

The student is taught the basic theories of plumbing and heating, soil waste and vent layout, household and industrial maintenance, sewage systems, and the use of hand and power tools. The fundamentals of communications and mathematics are also covered. Training is provided in all types of plumbing and heating repair work used in residential, institutional, and commercial applications.

Types of Jobs: Plumbing and heating installation, industrial maintenance, public utilities service, machine work and shipbuilding industries.

FIRST SEMESTER

			Hours
PLH	711	Plumbing and Heating I (8 weeks)	192
PLH	712	Plumbing and Heating II (8 weeks)	192
MTH	710	Technical Mathematics I	48
			432

SECOND SEMESTER

			Hours
PLH	721	Plumbing and Heating III (8 weeks)	192
PLH	722	Plumbing and Heating IV (8 weeks)	192
WEL	702	Electric Welding	80
ENL	711	Communications	48
			512

THIRD SEMESTER

			Hours
PLH	831	Plumbing and Heating V (8 weeks)	192
PLH	832	Plumbing and Heating VI (8 weeks)	192
ELT	110	Electricity for the Trades	80
		Optional Elective	0/48
			464/512

FOURTH SEMESTER

			Hours
PLH	841	Plumbing and Heating VII (8 weeks)	192
PLH	842	Plumbing and Heating VIII (8 weeks)	192
		Optional Elective	0/48/80
			384/432/464

PROGRAM OBJECTIVES

The goal of the Plumbing and Heating program is to develop marketable entry-level skills for employment in the field of plumbing and heating.

A graduate of the Plumbing and Heating program should be able to:

1. apply knowledge of safety and demonstrate good work habits in the trade.
2. use hand and power tools of the trade.
3. identify piping materials and install them using proper connections.
4. use and apply trade terms and technical data.
5. read and interpret blueprints, specifications, and codes as they apply to the trade.
6. lay out, estimate, calculate, and use mathematical skills as required in the trade.
7. install, maintain, and repair plumbing and heating mechanical systems and equipment and keep abreast of new developments in the field.
8. demonstrate the capability to write letters of application, memos, work orders, and reports, and apply communication skills in the world of work.
9. perform necessary welding functions as related to the plumbing and heating trade.
10. apply basic knowledge and skills of electrical work to adequately install, repair, maintain, and troubleshoot electrical controls as related to plumbing and heating.

Practical Nursing (NU)
Certificate/Fifty-Two Weeks

Classroom instruction in theory and basic skills is given on the WACC campus. Practical experience in actual patient care settings is obtained at the two local hospitals (Williamsport Hospital and Divine Providence Hospital) and at the Lysock View Home and Hospital. Under the guidance of college instructors at the cooperating institutions, students gain experience in the care of adult patients and in maternal and child health nursing. Mental health concepts, pharmacology, and diet therapy are integrated throughout the program.

Types of Jobs: Employment in hospitals, convalescent homes, visiting nurses association, doctor's office, private duty.

FIRST SEMESTER-16 Weeks of 33 Hours Each

		Hours
NUR 710	Foundations of Nursing	384
NUR 711	Nursing Relationships	48
NUR 712	Scientific Principles Relating to Nursing	96
		528

SECOND SEMESTER-15 Weeks of 30 Hours Each

		Hours
NUR 723	Medical-Surgical Nursing—Elementary*	216
NUR 724	Parental and Child Health**	234
		450

THIRD SEMESTER-15 Weeks of 30 Hours Each

		Hours
NUR 735	Medical-Surgical Nursing—Intermediate	450
		450

PRACTICUM-3 Weeks of 25 Hours Each

NUR 736	Practicum	75

Theory—600 Hours 2/5 Ratio
Practicum—903 Hours 3/5 Ratio
Total—1,503 Hours

VACATION-3 Weeks

*NUR 723-15 wks lecture/7 wks lab
**NUR 724-15 wks lecture/8 wks lab

PROGRAM OBJECTIVES

A graduate of The Williamsport Area Community College Practical Nursing program will be able to share in the care of the sick, in rehabilitation, and in the prevention of illness, always under the direction of a licensed physician and/or registered professional nurse. The program also provides the academic and practical educational experiences which enable graduates to pass a state board examination and thereby obtain a license.

At the completion of the Practical Nursing program, the graduate should be able to:

1. utilize, under supervision, scientific knowledge and skills necessary to plan and provide safe and comprehensive client-centered nursing care of the subacutely and chronically ill of all ages.
2. perform nursing care that reflects accurate assessments of the client's growth and development.

3. utilize the problem-solving approach in administering nursing care.

4. utilize effective communication skills.

5. assist the professional and technical nurse in the care of the acutely ill patient.

6. demonstrate knowledge of community health agencies in meeting health needs of society.

7. demonstrate an acceptable code of ethical behavior according to standards set by health care delivery agencies.

Printing (GP)
Certificate/One Year

This program examines the many complex operations and occupations involved in modern printing. All printing operations are covered to insure versatility in the field.

Types of Jobs: Camera work, stripper, layout work, compositor, platemaker, and press work.

FIRST SEMESTER

			Hours
PRI	711	Composing I	128
PRI	712	Photomechanical I	128
PRI	713	Press and Bindery I	128
ENL	711	Communications	48
		Optional Elective	0/48
			432/480

SECOND SEMESTER

			Hours
PRI	714	Composing II	128
PRI	715	Photomechanical II	128
PRI	716	Press and Bindery II	128
MTH	710	Technical Mathematics I	48
		Optional Elective	0/48
			432/480

PROGRAM OBJECTIVES

This program examines the many complex operations and occupations involved in modern printing. All printing operations are covered to insure versatility in the field.

A graduate of the Printing program should be able to:

1. recognize the major printing processes, their respective products, and the relative merits of each process.

2. perform in the areas of layout and design, copy preparation and composition, continuous tone and reproduction photography, stripping, platemaking, presswork and finishing with a level of proficiency suitable for job entry as an advanced learner.

3. appraise his/her abilities and limitations in the various areas comprising graphic arts.

4. demonstrate the personal traits of promptness, willingness to work, and the ability to accept supervision.

5. demonstrate respect for equipment and use appropriate safety precautions when working around such equipment.

6. compare production departments and the contributions each makes to the total product.

7. write clear, concise, legible, and accurate technical reports using proper language structure.

8. demonstrate skill in basic oral communication.

9. solve basic mathematical problems related to printing operations.

Radiologic Technology (RT)
Associate Degree/Two Years

This program includes courses in anatomy, physiology, physics, medical terminology, professional ethics, and radiologic equipment and safety as well as English and mathematics. Practical experience with sick and injured patients, under qualified technical supervision in local affiliated hospitals, will be an important aspect of training. Students are exempt from the Physical Education Program. Internships are required to establish eligibility for the registry examinations necessary to qualify as a registered radiologic technician. Arrangements for the summer internships will be made with the affiliated hospitals. A total of 2400 practicum hours are necessary to be eligible to sit for the registry exam. The RT program is to be completed during a 24 consecutive month period.

Types of Jobs: Hospital facilities, doctors and radiologists in private practice, civilian and military government agencies, industry.
Required High School Subjects: Two years of algebra. For exception, see pg. 7.

FIRST SEMESTER

			Credits
RAD	110	Radiologic Technology I	5
BIO	115	Human Anatomy and Physiology I	4
MTR	101	Medical Terminology I	3
ENL	111	English Composition I	3
MTH	103	College Algebra	3
			18

SECOND SEMESTER

			Credits
RAD	120	Radiologic Technology II	7
BIO	125	Human Anatomy and Physiology II	4
ENL	121	English Composition II	3
MTH	104	College Trigonometry	3
			17

RAD	200	FIRST SUMMER INTERNSHIP	No Credit

THIRD SEMESTER

			Credits
RAD	230	Radiologic Technology III	10
PHS	112	Introductory Physics	4
		Elective-Psychology*	3
			17

FOURTH SEMESTER

			Credits
RAD	240	Radiologic Technology IV	10
PHS	122	Radiation Physics	3
SOC	111	Introduction to Sociology	3
			16

RAD	200	SECOND SUMMER INTERNSHIP	No Credit

*Psychology Electives:

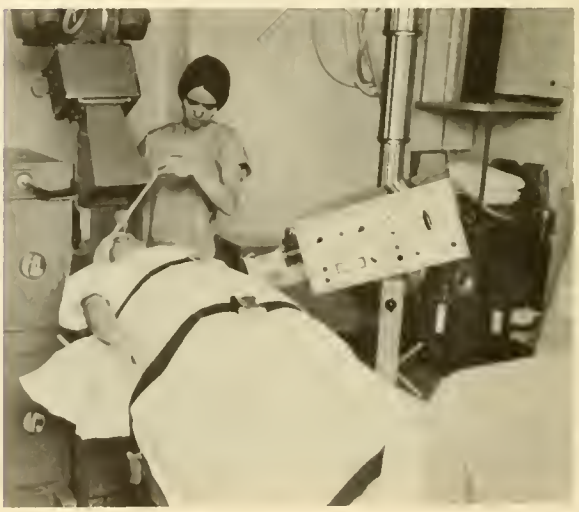
PSY	111	General Psychology	3
PSY	201	Abnormal Psychology	3
PSY	241	Social Psychology	3

PROGRAM OBJECTIVES

The general program objective is to provide students with the academic and practical educational experiences which will enable them to pass the National Radiological Technology Registry Examination and to qualify for employment as a registered radiologic technician. Graduates will also be able to transfer to a four-year program in radiological technology.

The Radiologic Technology graduate should be able to:

1. distinguish between the different types of imaging systems.
2. recognize differences between diagnostic and inferior quality radiographs.
3. understand and utilize knowledge of the general effects of radiation on the body.
4. apply knowledge of basic electronics and physics necessary in daily radiographic practice.
5. describe the effects of ionizing radiation in biological systems.
6. operate effectively within and be fully aware of the basic organizational structure of a radiology department.
7. use knowledge of anatomy, positioning, and radiographic techniques to accurately demonstrate anatomical structure on a radiograph.
8. state the importance of providing for the physical and emotional needs of the patient.
9. apply knowledge of mathematical calculations to determination of exposure factors.
10. utilize effective communication skills.
11. use correct medical and anatomical terminology as applied to radiological technology.



Real Estate
Exam Preparation

To qualify to take the State Real Estate Commission's examination for a salesperson's license, a student needs the equivalent of four credits in real estate. Courses recommended for the sales license test are: Real Estate Principles, Real Estate Sales, and Real Estate Law (any two). The Commission will waive one of the two courses required for the sales license for any student who has a two-year or four-year degree. In order to take the examination for a broker's license, the student needs 16 credits in real estate.

The Business & Computer Science Division's real estate courses are listed below. Courses which meet the State Real Estate Commission's requirements for the salesperson's and broker's license are marked in the appropriate column.

Course Title	Course No.	Cr.	Sales*	Broker**
Real Estate Principles I	RES 112	3	x	x
Real Estate Law	RES 113	3	x	x
Real Estate Appraisal	RES 114	3		x
Real Estate Sales	RES 115	3	x	x
Real Estate Financing	RES 116	3	x	x
Real Estate Management	RES 117	3		x
Real Estate Principles II	RES 212	3	x	x
Real Estate Math	RES 119	3		x
Real Estate Taxes	RES 120	3		x

*Four credits, or two courses, are required before examination for a salesperson's license can be taken. Any two of the five courses may be used to meet the requirements.

**Sixteen credits, or six courses, are required before the examination for a broker's license can be taken. Any six of the nine courses may be used to meet the requirement.

Secretarial Science (BS)-Executive
Associate Degree/Two Years

This program provides proficiency in the secretarial skills of typing, shorthand, the operation of business machines, and general office practices. Supplementary courses in accounting, business, and liberal studies are included in the program.

Types of Jobs: Business office in commerce, government, industry or the professions.

FIRST SEMESTER

			Credits
SEC	111	Typewriting I	3
SEC	112	Office Machines	2
SEC	114	Shorthand I	3
MGT	111	Business Mathematics	3
ENL	111	English Composition I	3
PED		Physical Education	1
			15

SECOND SEMESTER

			Credits
SEC	121	Typewriting II	3
SEC	124	Shorthand II	3
SEC	128	Secretarial Procedures	2
ACC	121	Elementary Accounting	3
MGT	230	Business Communications	3
PED		Physical Education	1
		Elective-Social Science	3
			18

THIRD SEMESTER

			Credits
SEC	231	Typewriting III	3
SEC	234	Shorthand Workshop	6
MGT	110	Principles of Business	3
ENL	202	Fundamentals of Speech	3
			15

FOURTH SEMESTER

			Credits
SEC	244	Secretarial Workshop	8
SEC	245	Office Internship	1
MGT	248	Supervision & Human Relations	3
		Elective	3/4
			15/16

Secretarial Science (BS)-Legal
Associate Degree/Two Years

This program provides proficiency in the secretarial skills of typing, shorthand, the operation of business machines, and general office practices. Supplementary courses in business law and liberal studies are included in the program.

Types of Jobs: Business, commerce, and law.

FIRST SEMESTER

			Credits
SEC	111	Typewriting I	3
SEC	112	Office Machines	2
SEC	114	Shorthand I	3
MGT	111	Business Mathematics	3
ENL	111	English Composition I	3
PED		Physical Education	1
			15

SECOND SEMESTER

			Credits
SEC	121	Typewriting II	3
SEC	124	Shorthand II	3
SEC	128	Secretarial Procedures	2
ACC	121	Elementary Accounting	3
MGT	230	Business Communications	3
PED		Physical Education	1
		Elective-Social Science	3
			18

THIRD SEMESTER

			Credits
SEC	231	Typewriting III	3
SEC	234	Shorthand Workshop	6
MGT	231	Business Law I	3
ENL	202	Fundamentals of Speech	3
			15

FOURTH SEMESTER

			Credits
SEC	244	Secretarial Workshop	8
SEC	245	Office Internship	1
MGT	241	Business Law II	3
		Elective	3/4
			15/16

Secretarial Science (BS)-Medical Associate Degree/Two Years

This program provides proficiency in the secretarial skills of typing, shorthand, the operation of business machines, and general office practices. Supplementary courses in biology, medical terminology, and liberal studies are included in the program.

Types of Jobs: Doctors, dentists, hospitals, and various health occupation offices.

FIRST SEMESTER

			Credits
SEC	111	Typewriting I	3
SEC	112	Office Machines	2
SEC	114	Shorthand I	3
MGT	111	Business Mathematics	3
ENL	111	English Composition I	3
PED		Physical Education	1
			15

SECOND SEMESTER

			Credits
SEC	121	Typewriting II	3
SEC	124	Shorthand II	3
SEC	128	Secretarial Procedures	2
ACC	121	Elementary Accounting	3
MGT	230	Business Communications	3
BIO	121	Basic Anatomy and Physiology	3
PED		Physical Education	1
			18

THIRD SEMESTER

			Credits
SEC	231	Typewriting III	3
SEC	234	Shorthand Workshop	6
MTR	101	Medical Terminology I	3
ENL	202	Fundamentals of Speech	3
			15

FOURTH SEMESTER

			Credits
SEC	244	Secretarial Workshop	8
SEC	245	Office Internship	1
		Elective-Social Science	3
		Elective*	3
			15

*MTR 102 Medical Terminology II recommended

PROGRAM OBJECTIVES

The general objective of the Secretarial Science program is to enable the student to master one of three secretarial fields: executive, legal, or medical. Distinct and singular studies related to each field are stressed along with a broad spectrum of general and basic educational courses to enable graduates to enter and to progress in the secretarial profession.

The graduate should be able to:

1. demonstrate proficiency in administrative secretarial skills.
2. apply terminology, utilize forms, and use other skills unique to the area of specialization – executive, legal, or medical.
3. compose effective written and oral communications.
4. employ competencies in specialized secretarial office procedures.
5. illustrate extensive knowledge of modern office equipment and office supplies.
6. apply working knowledge of advanced reprographics, word and information processing, and computational skills.
7. assess and influence behavior among supervisors, peers, and subordinates.
8. apply general knowledge of the social sciences, and possess an awareness of their effect on our society.
9. identify the need for physical fitness and positive leisure activities.

Service and Operation of Heavy Construction Equipment (SO) Certificate/Two Years

This program provides the student with the principles of maintaining, repairing and operating many types of construction equipment. It includes the rebuilding of internal combustion engines, basic surveying, and complete mechanical safety measures.

Types of Jobs: Operation, mechanical repair, service of heavy equipment. Self-employed or work with contractors, dealers, miners, and quarriers.

FIRST SEMESTER

			Hours
SOE	711	Service and Operation I (8 weeks)	200
SOE	712	Service and Operation II (8 weeks)	200
MTH	710	Technical Mathematics I	48
			448

SECOND SEMESTER

			Hours
SOE	723	Service and Operation III (8 weeks)	200
SOE	724	Service and Operation IV (8 weeks)	200
ENL	711	Communications	48
			448

THIRD SEMESTER

			Hours
SOE	835	Service and Operation V (8 weeks)	200
SOE	836	Service and Operation VI (8 weeks)	200
		Optional Elective	0/48
			400/448

FOURTH SEMESTER

			Hours
SOE	847	Service and Operation VII (8 weeks)	200
SOE	848	Service and Operation VIII (8 weeks)	200
		Optional Elective	0/48
			400/448

PROGRAM OBJECTIVES

The general objective of the Service and Operation of Heavy Equipment program is to provide the student with the instruction required to qualify for a position in various phases of the construction equipment industry and at various levels of employment.

A graduate of Service and Operation should be able to:

1. practice approved safety procedures and incorporate them into various work situations.
2. read and interpret equipment manuals and issue clear, legible, and complete service reports.
3. identify and manipulate tools of the trade.
4. describe the operation and demonstrate troubleshooting maintenance and repair of internal combustion engines.
5. troubleshoot, maintain, and repair the complete power train with its related components such as brake systems.
6. demonstrate the use of oxyacetylene welding, cutting, brazing, and electric welding applications.
7. distinguish the various types of hydraulic systems, power shift transmissions, torque converters, fuel systems, and heavy duty electrical systems found on construction equipment as well as maintain, troubleshoot, and repair these systems.
8. demonstrate the use of transits and hand levels as applied to construction layouts.
9. apply preventive maintenance techniques to all heavy equipment systems.
10. demonstrate the use of various pieces of heavy equipment employing earth-moving techniques accepted by industry.
11. use appropriate mathematical skills and competencies to solve applied problems in the field of heavy equipment.
12. identify the personal attributes required for successful relationships with employers, customers, and fellow employees.

Sign Painting (SP)
Certificate/Two Years

This program provides practical experience in lettering skills, design, layout and type finishing of signs and showcards. Materials, equipment, and safety practices used in painting, building, and sign erecting are stressed.

Types of Jobs: Self-employment; work with sign painters, bottlers, outdoor advertisers, department stores, theaters, television stations, and truck fleets.

FIRST SEMESTER

			Hours
SIG	711	Sign Painting I	400
MTH	710	Technical Mathematics I	48
			448

SECOND SEMESTER

			Hours
SIG	721	Sign Painting II	400
ENL	711	Communications	48
			448

THIRD SEMESTER

			Hours
SIG	811	Sign Painting III	400
		Optional Elective*	0/48
			400/448

FOURTH SEMESTER

			Hours
SIG	821	Sign Painting IV	400
		Optional Elective*	0/48
			400/448

*Suggested Electives
ACC 121 Elementary Accounting
MGT 247 Small Business Management

PROGRAM OBJECTIVES

The overall objective of the program is to prepare students for employment as sign painters.

A graduate of the Sign Painting program should be able to:

1. construct the basic alphabet using pencil techniques.
2. use showcard paint in the construction of signs.
3. name, use, and care for brushes and special tools of the sign painting field.
4. lay out and paint paper signs and showcards using basic strokes, construction, and tempera color.
5. create (design, lay out, and paint) simple showcard and paper signs.
6. use bulletin colors, lettering quills, and brushes to produce a variety of signs.
7. letter with bulletin colors on a variety of surfaces including glass, metal, wood, plastic, and paper.
8. design and produce signs using gold leaf techniques.
9. design and produce small billboards.
10. use elementary math operations (addition, subtraction, multiplication, division) including decimals, fractions, and conversions, as they apply to sign painting.
11. write clear, concise, legible, and accurate reports, business memorandums, and business letters.

Technical Illustration (TI)
Associate Degree/Two Years

This program prepares the student to interpret engineering drawings into three-dimensional illustrations. The program provides drawing and art skills, coupled with humanities, mathematics, and communications courses to enhance occupational opportunities.

Types of Jobs: Technical illustrator for industry, either in an engineering or publications department. In the engineering field you would produce clear, accurate pictures drawn from blueprints for engineers; in publications, you would produce illustrations for company literature; parts and sales catalogs; maintenance, repair, and assembly manuals, charts, and handbooks.
Required High School Subjects: Two years of algebra, one year of science. For exception, see pg. 7.

FIRST SEMESTER

			Credits
EDT	111	Basic Drafting I (8 weeks)	4
EDT	112	Basic Drafting II (8 weeks)	4
ART	111	Basic Drawing	3
ENL	111	English Composition I	3
MTH	103	College Algebra	3
			17

SECOND SEMESTER

			Credits
EDT	121	Power Transmission (8 weeks)	4
EDT	122	Mechanisms (8 weeks)	4
ART	121	Basic Painting	3
MTH	104	College Trigonometry	3
PED		Physical Education	1
			15

THIRD SEMESTER

			Credits
EDT	106	Industrial Processes	2
ART	232	Lettering and Layout	3
GCO	515	Layout and Design	3
GCO	516	Typographic Composition	3
PED		Physical Education	1
		Elective*	3
			15

FOURTH SEMESTER

			Credits
ART	241	Media and Techniques	3
GCO	525	Process Camera	3
GCO	526	Film Assembly and Imposition	3
ENL	121	English Composition II	3
		Elective*	3/4
			15/16

*Electives

MGT	110	Principles of Business	3
ENL	202	Fundamentals of Speech	3
GOV	231	American Government-National	3
GOV	241	State and Local Government	3
HIS	111	Western Civilization I	3
HIS	121	Western Civilization II	3
HIS	231	U.S.—Survey I	3
JOU	232	Editing	3
PSY	111	General Psychology	3
SOC	111	Introduction to Sociology	3
ECO	201	Principles of Economics	3
ESC	100	Environmental Science	3
GEL	105	Physical Geology	4

PROGRAM OBJECTIVES

The general objective of the Technical Illustration program is to prepare the student with the skills and competencies necessary for employment as a technical illustrator in industry, or for transfer to a baccalaureate degree program.

A graduate of the Technical Illustration program should be able to:

1. interpret engineering drawings into three-dimensional illustrations.
2. letter and lay out using a variety of mediums, black and white and color, both in line and continuous tone.
3. relate technical knowledge to the areas listed above in order to make rational decisions.
4. follow written and oral directions.
5. demonstrate respect for equipment and use appropriate safety precautions when working around such equipment.
6. demonstrate the personal traits of promptness, willingness to work, and receptivity to supervision.
7. utilize appropriate mathematical competencies necessary for job performance and for the development of visualization skills and logical thought processes.
8. communicate clearly, both orally and in writing.
9. demonstrate knowledge of a lifetime sport which will provide recreation and promote physical fitness.

Tool Design Technology (TD)
Associate Degree/Two Years

This program provides instruction in drafting and tool production techniques and in the production of tool drawings. It emphasizes planning and making drawings of special mechanical devices (dies, gages, cutting tools, jigs, fixtures) ranging from simple hand tools to complex progressive dies. The student is taught to write programs for production jobs on tape-controlled machines.

Types of Jobs: Tool, machine, and product designer; numerical programmer, design drafting, estimator, and systems program designer.
Required High School Subjects: Two years of algebra. For exception, see pg. 7.
*GENERAL ELECTIVES are courses chosen from outside your program of concentration.

FIRST SEMESTER

			Credits
EDT	106	Industrial Processes	2
EDT	111	Basic Drafting I (8 weeks)	4
EDT	112	Basic Drafting II (8 weeks)	4
ENL	111	English Composition I	3
MTH	103	College Algebra	3
PED		Physical Education	1
			17

SECOND SEMESTER

			Credits
EDT	121	Power Transmission (8 weeks)	4
EDT	122	Mechanisms (8 weeks)	4
ENL	121	English Composition II	3
MTH	104	College Trigonometry	3
PED		Physical Education	1
			15

THIRD SEMESTER

			Credits
TDT	231	Tool Drafting (8 weeks)	4
TDT	232	Fixture Design (8 weeks)	4
PHS	100	Physics-Mechanics	4
		Elective-General*	3/4
			15/16

FOURTH SEMESTER

			Credits
TDT	241	Gage Design and Programming (8 weeks)	4
TDT	242	Die Design (8 weeks)	4
PHS	106	Introduction to Metallurgy	4
		Elective-General*	3/4
			15/16

PROGRAM OBJECTIVES

The general objective of this program is to prepare the student with the skills and competencies necessary to enter the tool design area of engineering.

A graduate of the Tool Design Technology program should be able to:

1. describe and apply the various methods of manufacturing as they relate to tool design.
2. select cutting tool materials to satisfy various metal removal operations.
3. apply tolerance limits and fits to satisfy the required manufacturing process.
4. apply calculations to determine cutting speeds and feeds for various metal removal applications.
5. design jigs and fixtures to hold tools and workpieces for the various metal removal applications.
6. design various kinds of gages and gaging setups to insure quality control.
7. write numerical control programs.
8. design piercing, stamping, and forming dies.
9. apply the basic principles of physics and metallurgy to the tool design process.
10. utilize the appropriate mathematical skills and competencies to solve applied problems in the design process.
11. communicate effectively in small group and interpersonal situations that may occur in industry.
12. function as an informed and participating citizen in a democratic society through exposure to the humanities and social sciences.
13. develop and utilize the fundamental skills provided through exposure to lifetime sports.

Welding (WE)
Certificate/Two Years

This program emphasizes theory and manipulative skills. It stresses developments and techniques in electric, oxyacetylene, and inert gas shielded methods of welding.

Types of Jobs: Welder, welder operator, fitter, specialist, supervisor, and inspector.

FIRST SEMESTER

			Hours
WEL	711	Acetylene Welding	400
MTH	710	Technical Mathematics I	48
			448

SECOND SEMESTER

			Hours
WEL	721	Electric Welding	400
ENL	711	Communications	48
			448

THIRD SEMESTER

			Hours
WEL	831	Inert Gas Welding	400
EDT	105	Blueprint Reading	48
		Optional Elective	0/48
			448/496

FOURTH SEMESTER

			Hours
WEL	841	Welding (Advanced)	400
		Optional Elective	0/48
			400/448

PROGRAM OBJECTIVES

The general objective of this program is to prepare the student with marketable skills in the general field of welding.

A graduate of the Welding program should be able to:

1. demonstrate proficiency in welding skills employing the oxyacetylene, shielded metal arc, gas tungsten arc, and gas metallic arc welding processes.
2. operate power equipment essential to perform welding operations.
3. employ safe welding practices common to shop and field operations.
4. distinguish types of welding power sources, their characteristics, uses, and limitations.
5. perform visual, destructive, and non-destructive testing and inspection methods.
6. construct weldments from sketches, blueprints or verbal instructions employing proper use of welding symbols.
7. select the proper welding process, welding procedures, supplies, etc., within reasonable economic limitations.
8. employ simple shop methods for determining types of metals (ferrous and non-ferrous).
9. apply the physical and mechanical properties of metals, as related to weldability, during the welding process.
10. perform duplication of welding qualification tests according to specifications of American Welding Society, The American Society of Mechanical Engineers and the American Petroleum Institute Codes.
11. develop positive societal and work habits
12. utilize the appropriate mathematical skills and competencies to solve applied problems in the field of welding.
13. demonstrate basic skills in speech and technical writing.

COURSE DESCRIPTIONS

Courses are listed alphabetically under the name of the subject – Accounting, Advertising, Advertising Art, Agribusiness, Architectural Technology, Automotive, Aviation, Biology, etc.

The letters and numbers preceding the names of the courses are an identification code for recording purposes. Courses are designated by numbers as follows:

Courses Numbered	Description
001 - 099	Developmental courses which may be required of students on the basis of placement tests. The College awards institutional credit for these courses. This credit will appear on the student's transcript and count in the Cumulative Grade Point Average. However, credits earned in courses numbered 001-099 may not replace any courses or electives required in a given program.
100 - 299	College-level courses offered for credit and applicable to Associate Degree programs.
500 - 699	Courses are applicable to both Associate Degree and Certificate programs. Therefore these courses are offered for either credits or hours.
700 - 899	Courses offered for hours and applicable to Certificate programs.

If a particular course has a prerequisite or corequisite, that fact is indicated in italics at the end of the course description.

The number immediately following the description of the course content indicates the number of credits. "3 Cr." or "192 Hr." received for the course. Within the parentheses, the number before the dash indicates lecture hours and the number after the dash indicates laboratory or shop hours.

SPECIAL TOPICS COURSES: (1-5 credits)

BTT	299	BUILDING TECHNOLOGIES
BCS	299	BUSINESS & COMPUTER SCIENCE
CHS	299	COMMUNICATIONS, HUMANITIES & SOCIAL SCIENCES
ESD	299	EARTH SCIENCE
EED	299	ELECTRICAL/ELECTRONICS
EDT	299	ENGINEERING & DESIGN TECHNOLOGIES
MSH	299	MATHEMATICS, SCIENCE & ALLIED HEALTH
TTD	299	TRANSPORTATION TECHNOLOGIES

COURSE DESCRIPTION

Special attention to particular abilities, interests of students,and particular topics. Individual guidance in advanced studies. Admission by permission of the instructor, Division Director, and Dean for Degree and Certificate Programs.

A

ACCOUNTING (ACC)

ACC 112
ACCOUNTING I
Introduction to elementary accounting principles. Includes the procedures, terms, theories, and practical applications of proprietorship accounting. Develops the foundation of accounting principles necessary for success in advanced courses and helps prepare the student for employment in business. 3 Cr. (3-0).

ACC 121
ELEMENTARY ACCOUNTING
Basic course in accounting for students majoring in Secretarial Science and non-business areas. Develops those accounting practices and theories which will prepare the student for employment in, or operation of, a sole proprietorship form of business. 3 Cr. (3-0).

ACC 122
ACCOUNTING II
Continues the development of accounting principles as applied to the different forms of business organization. Emphasizes corporate and partnership accounting. 3 Cr. (3-0). *Prerequisite: ACC 112 or Division permission.*

ACC 125
INCOME TAX ACCOUNTING
Familiarizes students with the different rules and regulations regarding Federal and Pennsylvania state income taxes. Tax deductions, credits, exemptions, rates, computation of all types of taxes, and the various forms that students should be familiar with are stressed. 3 Cr. (3-0).

ACC 230
MANAGERIAL ACCOUNTING
Presents the analysis tools needed to make decisions based on financial information. Emphasizes the organization of data for decisions, development of sound measurements, and the use of accounting for control and evaluation of economic activity. De-emphasizes the use of financial accounting using the transaction recording process. Course assumes the student has a thorough knowledge of accounting principles and is prepared to analyze the financial summarizations. 3 Cr. (3-0). *Prerequisite: ACC 112 or Division permission.*

ACC 231
COST ACCOUNTING
Includes transactions of a manufacturing business, finding unit costs, finding total cost after processing, and profit through distribution. Three types of cost accounting systems will be discussed in detail: Job Cost, Process Cost, and Standard Cost. 3 Cr. (3-0).
Prerequisite: ACC 122 or Division permission.

ACC 232
INTERMEDIATE ACCOUNTING I
Detailed in-depth study of financial statements and the fundamental accounting processes. Includes an examination of working capital. 3 Cr. (3-0). *Prerequisite: ACC 122 or Division permission.*

ACC 244
INTERMEDIATE ACCOUNTING II
Deals with noncurrent assets and liabilities, stockholders' equity, and various analytical accounting processes. 3 Cr. (3-0).
Prerequisite: ACC 232 or Division permission.

ACC 246
AUDITING
Offers a thorough knowledge of auditing through the application of principles and adherence to auditing standards. Internal controls, the field of auditing and public accounting, audit techniques, audit work papers, verification of accounts, reporting the audit and internal auditing are discussed. 3 Cr. (3-0). *Prerequisites: ACC 112, ACC 122.*

ADVERTISING (ADV)

ADV 101
PRINCIPLES OF ADVERTISING
Survey spanning the historical perspective of American advertising and advertising in relation to the economy. Organization and management of advertising; its place in total marketing as well as retail and national advertising; sociological aspects; creative production. 3 Cr. (3-0).

ADVERTISING ART (ART)

ART 111
BASIC DRAWING
The basic concepts of observing and perceiving objects in space and drawing them in various ways using a variety of techniques.
3 Cr. (1-6).

ART 121
BASIC PAINTING
An introduction to painting with emphasis on color, value, form, texture. Emphasis is placed on representational painting but experimentation is encouraged. 3 Cr. (1-6).

ART 231
COLOR AND DESIGN
Introduction to two dimensional design and color. Studies from nature and the properties of color, shape, form and space leading to the discovery of individual solutions to problems in two dimensional design. 3 Cr. (1-6).

ART 232
LETTERING AND LAYOUT
A study of the elements and design of layouts for advertising art. The history, anatomy and design of letters, emphasizing the proper use of lettering in advertising. 3 Cr. (1-6).

ART 241
MEDIA AND TECHNIQUES
Lecture and demonstrations illustrate and describe the various media and techniques used in advertising art, such as gouache, watercolor, wash, pastel, pen and ink, scratchboard, airbrush and art aids.
3 Cr. (1-6). *Prerequisite: Consultation with instructor.*

ART 242
ADVERTISING DESIGN
Projects in poster design, brochures, illustration and other forms of advertising and editorial media including basic techniques and processes in use in preparation of advertising and graphic art for the printer. The following skills are involved: illustration, paste-up, specifying type, overlays, lettering, and layout.
3 Cr. (1-6). *Prerequisite: Consultation with instructor.*

AGRIBUSINESS (AGB)

AGB 111
INTRODUCTION TO AGRICULTURAL BUSINESS
An overview of the broad field of agribusiness, its operation, specialized areas, and their functions. Numerous field trips will be made to different types of agribusinesses and farms to provide the student with a first hand view of the industry to help him/her become oriented in the career goals of his/her choice. In addition, the student will develop a planned agribusiness internship/co-op experience.
4 Cr. (3-3).

AGB 112
SOILS, FERTILIZER, AND AGRICULTURAL CHEMICALS
The formation, physical, and biological properties of soil with special attention to soil conditions that affect crop production. Composition of fertilizer, its manufacture and use, including soil sampling, test report analysis, plant deficiencies, and the reactions of nutrients within plants. Types of chemicals and how to use and apply them properly.
4 Cr. (3-3).

AGB 123
FIELD AND FORAGE CROP PRODUCTION
A study of the basic principles related to the culture and production of grain crops and forage. 3 Cr. (2-3).

AGB 124
AGRICULTURAL FINANCING
The principles of financing applied to agribusiness. A look at the many sources of credit—private and governmental. Obtaining credit and its use. 3 Cr. (3-0).

AGB 125
DAIRY PRODUCTION
The feeding, management, breeding, milking, disease control, and housing of dairy cattle. 3 Cr. (2-3).

AGB 236
ANIMAL PRODUCTION
The basic practical management aspects of livestock production including beef, swine, sheep, and poultry. 4 Cr. (3-3).

AGB 237
SPECIAL TOPICS IN AGRIBUSINESS
Investigation and study individually and by the class in special topics related to the objectives of the Agribusiness program. Examples of topics: Conservation, Horticulture, and Forestry. 3 Cr. (2-3).

AGB 240
INTERNSHIP/CO-OP
Practical experience gained by a planned and supervised program of work with an agricultural business or farming enterprise. 3 Cr. 200 Hrs.

AGB 248
FARM MANAGEMENT
The fundamental principles of management and economics emphasizing their application to the farm. Farm records, their analysis and use in determining progress and farm planning. 3 Cr. (3-0).

AGB 249
AGRICULTURAL SALES AND SERVICE
An introduction to the factors involved in marketing, including the psychology of selling, pricing, and presenting the product. Supply and demand, new concepts in marketing, the relationship of customer service to growth. 3 Cr. (3-0).

ARCHITECTURAL TECHNOLOGY (ARC)

ARC 101
BASIC ARCHITECTURAL DRAFTING
Fundamentals of architectural drawing for woodworking technology; use and care of drawing instruments and media, lettering, orthographic projection principles, preliminary drawing and sketching, preparation of working drawings, exterior and interior finish work, detailing cabinet and mill work. 96 Hrs. (1-5).

ARC 111
STATICS
Algebraic and graphic determination of loads, reactions, shear and moment, deflection, loading and buckling, truss design, properties of areas. 3 Cr. (3-0).

ARC 112
ARCHITECTURAL GRAPHICS I
Basic architectural graphic media; projection drawings; axonometrics and perspective; color and texture; introduction to the architectural model; basic vocabulary of architectural drawings; composition, space, form, value, texture, shades, shadows. 4 Cr. (1-9).

ARC 113
INTRO. HISTORIC THEORY IN ARCHITECTURE
Introductory course in architecture giving an overview of the curriculum and its relation to the profession. Discussions of architectural employment and further architectural education. Surveys architectural ideas as an introduction to historical theory of building, planning, and urban development from the emergence of people to the present day. 3 Cr. (3-0).

ARC 114
BUILDING MATERIALS AND METHODS I
Study of typical materials of residential construction; their production, properties, use, performance in combinations. 3 Cr. (3-0).

ARC 121
STRUCTURES I
Theory and design of wood and timber; identification, characteristics and classifications of wood; working stresses; design and beams, columns, joints, rafters, planks, laminated sections; timber connections, fastenings and their working properties; laminated lumber, shapes.
2 Cr. (2-0).

ARC 122
ARCHITECTURAL GRAPHICS II
Architectural rendering in various media; black and white, color problems; emphasis on development of techniques, style, presentation. 3 Cr. (1-6).

ARC 123
ARCHITECTURAL WORKING DRAWINGS
Laboratory practice in producing a complete set of architectural working drawings; emphasis on preparation, technique, content, thoroughness, continuity, lettering, presentation quality. 2 Cr. (0-6).

ARC 124
DESIGN I
Fundamental relationships of function, space, time, light, human needs; introduction to the design process; collaborative work; emphasis on methods of work; presentation of architectural ideas by preliminary drawings; working drawings; models. 4 Cr. (1-9).

ARC 201
ADVANCED DESIGN I
Continuation of the design process; individual projects to develop student's ability to coordinate the design concept with construction. 4 Cr. (1-9).

ARC 202
ADVANCED DESIGN II
Continuation of ARC 201. 4 Cr. (1-9).

ARC 231
STRUCTURES II
Theory and design of steel beams, columns, and connections (welded, bolted and riveted) for moment, shear, slope, deflections, axial and eccentric loads; the AISC Handbook; bearing capacity of masonry walls, design of bearing plates, steel joints, space frames and trusses. 2 Cr. (2-0).

ARC 232
BUILDING MATERIALS AND METHODS II
Subsurface exploration and foundations, water and damp-proofing; methods and materials for construction of masonry, concrete walls, slabs; wall, floor, and roof systems; the curtain wall; fireproofing; building codes; architectural hardware.
3 Cr. (3-0). *Prerequisite: ARC 114.*

ARC 233
BUILDING EQUIPMENT I
Theory and design of plumbing, heating, air-conditioning, and control systems; sources and design of water supply; sanitary and storm systems; computation of plumbing, heating, and cooling loads.
3 Cr. (3-0).

ARC 234
SITE PLANNING
Theories, methods and equipment for the measurement of distances, angles, differences in elevation; theory of error; computations; adjustment of data; mapping application of surveying methods to construction, boundaries; emphasis on production and interpretation of maps for selection of sites, planning of subdivisions, preparation of master plans; examination of sites for building, elements of architectural earth sculpture, water, subsurface conditions, landscaping. 3 Cr. (2-3).

ARC 235
DESIGN II
Problems of differential space organizations; specialized spacial forms; relationship of space, form, structure, equipment, light; applications of elements of detailing; design of load bearing and curtain walls relating to total design; problems of tall buildings, building groups, associated site planning; architectural character and aesthetics; correlation of design with associated methods of construction; analysis, development of programs, collaborative work; advanced problems of form, visual expression; emphasis on methods of work; presentation of architectural ideas by preliminary drawings; working drawings; models. 4 Cr. (1-9). *Prerequisite: ARC 124.*

ARC 241
STRUCTURES III
Reinforced concrete building; theory and design of slabs, beams, compression steel, columns, prestressed concrete, footings, walls; floors; quantitative study of structural forms from the view of material development. 2 Cr. (2-0).

ARC 242
BUILDING EQUIPMENT II
Theory and design of electrical service distribution systems; selection of electrical equipment, fixtures; electrical heating design; theory and measurement of light, sound; vertical transportation systems; sound systems. 3 Cr. (3-0).

ARC 243
DESIGN III
Final course in design sequence; coordinates the design process with administrative procedures encountered in architectural practice. Emphasizes design and design development. Utilizes knowledge and skills acquired in previous and concurrent design and technical courses. Assigned problems emphasize quality and understanding, with a systematic, uniform approach used to develop and explain building technology 4 Cr. (1-9).

ARC 244
PROFESSIONAL ADMINISTRATION & CONTRACT DOCUMENTS
Architectural registration, professional organization, ethics; forms of architectural service; contract law; bonds; liens; codes; insurance; bidding procedures; specification writing; supervision and administration of construction operation. 3 Cr. (3-0).

ARC 245
SEMINAR
Study of architectural ideas, theories, current problems; nature of architect as leader; human activity; relation to the human physical, social, intellectual and spiritual nature; influence of tradition, science, technology. 3 Cr. (3-0).

AUTOMOTIVE (ABC, AMC, AMD)

ABC 711
AUTO BODY REPAIR I (8 weeks)
Basic theory and practice in trade fundamentals; body and chassis work; sanding, masking. 192 Hrs. (3-21).

ABC 712
AUTO BODY REPAIR II (8 weeks)
Metal work; gas and electric welding; stretching and shrinkage of metal; fasteners; riveting. 192 Hrs. (3-21).

ABC 721
AUTO BODY REPAIR III (8 weeks)
Used car reconditioning; interior trim work. 192 Hrs. (3-21). *Prerequisites: ABC 711, ABC 712.*

ABC 722
AUTO BODY REPAIR IV (8 weeks)
Panel installation and alignment; front and rear suspension and alignment; frame alignment. 192 Hrs. (3-21). *Prerequisite: ABC 721.*

ABC 831
AUTO BODY REPAIR V (8 weeks)
Metal working and filling; color requirements. 192 Hrs. (3-21). *Prerequisites: ABC 711, ABC 712.*

ABC 832
AUTO BODY REPAIR VI (8 weeks)
Color matching; spray painting; working "totals". 192 Hrs. (3-21). *Prerequisites: ABC 711, ABC 712.*

ABC 841
AUTO BODY REPAIR VII (8 weeks)
Electrical practice; special trade tools and equipment; damage estimates; customizing. 192 Hrs. (3-21). *Prerequisites: ABC 711, ABC 712.*

ABC 842
AUTO BODY REPAIR VIII (8 weeks)
Customizing, stripping, vinyl tops, "felting"; custom painting, estimating. 192 Hrs. (3-21). *Prerequisites: ABC 711, ABC 712.*

AMC 711
AUTOMOTIVE MECHANICS I
Power Train. Theory of operation of standard transmissions, clutches, differentials, and automatic transmission. Rebuild procedures on selected standard transmissions and differentials. Minor service of automatic transmissions. Universal joint and rear axle service. Basic service of air conditioning systems. 192 Hrs. (3-9).

AMC 712
AUTOMOTIVE MECHANICS II
Brakes and Suspension. Theory of hydraulics, braking action, and suspension systems. Wheel alignment and balance. Steering gears and geometry. Repair procedures for brake and suspension systems. 192 Hrs. (3-9).

AMC 721
AUTOMOTIVE MECHANICS III
Fuel and Electrical. Basic theory of electricity. Operation and service of ignition, charging, cranking, lighting, and accessory circuits. Operation and service of emission control systems and fuel system components, with emphasis on carburetion. Introduction to principles of heating and ventilating systems. 192 Hrs. (3-9).

AMC 722
AUTOMOTIVE MECHANICS IV
Engines. Theory of internal combustion heat engines. Service and overhaul procedures. Cooling system service. Valve refacing and reseating. Hand tools and basic machine tools. 192 Hrs. (3-9).

AMC 831
AUTOMOTIVE MECHANICS V (8 weeks)
Application of basic service and repair procedures. Engine, chassis, and power train service with emphasis on fuel and electrical systems and engine service. Electronic engine diagnosis. 192 Hrs. (3-21). *Prerequisite: 384 Hrs. of AMC.*

AMC 832
AUTOMOTIVE MECHANICS VI (8 weeks)
Continuation of AMC 831. Basic service and repair procedures. Emphasis on power train, suspension, and brake service. Methods of state inspection. 192 Hrs. (3-21). *Prerequisite: AMC 831.*

AMC 841
AUTOMOTIVE MECHANICS VII (8 weeks)
General automotive repairs. Troubleshooting, diagnosis and repair of common malfunctions. Selected units for rebuild and overhaul. Chassis dynamometer testing. 192 Hrs. (3-21). *Prerequisite: 384 Hrs. of AMC.*

AMC 842
AUTOMOTIVE MECHANICS VIII (8 weeks)
Continuation of AMC 841. General automotive repairs. Common repair jobs on domestic vehicles. State inspection operations and repairs. 192 Hrs. (3-21). *Prerequisite: AMC 841.*

AMD 111
FUEL & ELECTRICAL SYSTEMS
Fundamentals of electricity-electron theory. Ohm's law, and basic circuitry. Principles of operation and service of ignition, charging, and cranking circuits. Lighting and accessories circuits. Operation and service of the fuel system. Principles of carburetion and fuel injection. Emphasis on carburetor service. Air conditioning control circuits. 7 Cr. (4-9).

AMD 112
ENGINES
Operation of two and four-stroke spark ignition engines. Service procedures on common automobile engines including valve jobs, engine overhaul, and cooling system repairs. Theory of gas cycles in automotive engines and air conditioners. Air conditioner repair and charging procedures. 7 Cr. (4-9).

AMD 121
POWER TRAIN
Operating principles and repair procedures for the clutch, standard transmission, U-joints, and differential. Fundamental theory of torque converters and planetary gearing. Minor service procedures for automatic transmissions. 7 Cr. (4-9).

AMD 231
BRAKES, CHASSIS AND SUSPENSION
Wheel alignment and balancing. Types of suspension systems. Suspension repairs. Drum and disc brake operating principles. Brake service procedures. Fundamental principles of hydraulic systems. Standard and power steering adjustments and service. 7 Cr. (4-9).

AMD 241
GENERAL REPAIR SERVICE
Application of service procedures to common repair jobs such as tune-up, brake relining, electrical service, and cooling system repairs. 3 Cr. (1-6). *Prerequisites: AMD 111, AMD 112, AMD 121, AMD 231.*

AMD 242
STATE INSPECTION REPAIRS
Study of the state code book. Application and demonstration of checking procedures to actual work. Regulations governing certification of state inspection stations and personnel. 3 Cr. (2-3). *Prerequisites: AMD 111, AMD 231.*

AMD 243
SERVICE SPECIALTY
Two topics will be selected from the following service areas: automatic transmission overhaul, front end work, foreign car service, or service management techniques. 7 Cr. (4-9). 208 Hrs. *Prerequisites: AMD 111, AMD 121, AMD 231.*

AVIATION (APC)

Lecture and lab hours are shown per semester, not per week.

APC 711
GENERAL AIRFRAME AND POWERPLANT
Basic concepts of aircraft, powerplant, aircraft systems maintenance; aircraft, powerplant nomenclature; theory of operation, weight, balance; blueprint reading; mechanics privileges, limitations; publications, aircraft forms. 328 Hrs. (159-169).

APC 712
POWERPLANT I
Basic theory and operating principles of aircraft gas turbine engines. 80 Hrs. (35-45).

APC 721
POWERPLANT II
Basic operating principles and theories of aircraft reciprocating engines, fuel metering systems, engine fuel system, aircraft propellers, ignition and exhaust systems. Maintenance, inspection, and troubleshooting techniques of the above mentioned systems are also included in the course. 480 Hrs. (176-304).

APC 831
POWERPLANT III
Basic theories and operating principles of aircraft engine lubrication, cooling, instrument, fire protection, and electrical systems Maintenance, inspection and troubleshooting techniques of the above mentioned systems are also included in the course. 210 Hrs. (119 91).

APC 832
AIRFRAME I
Basic operating principles and theories of aircraft airframe construction and repairs, as applicable to electrical systems, aircraft fabrics and refinishing, rigging and assembly, welding and inspection of the airframe. 270 Hrs. (108-162).

APC 841
AIRFRAME II
Basic operating principles and theories of aircraft airframe construction and repairs as applicable to wood and sheet metal structure, instrument, hydraulics, pneumatics, landing gear, fuel, navigation, air conditioning, pressurization and fire protection systems.
480 Hrs. (229-251).

B

BIOLOGY (BIO)

BIO 111
BASIC BOTANY (HORTICULTURE)
Fundamentals of plant science, plant anatomy, physiology, taxonomy, reproduction, and genetics. 3 Cr. (2-3), 80 Hrs.

BIO 113
GENERAL BIOLOGY I
Fundamental processes of living organisms. Main concepts of biology beginning with considerations of the chemical basis of life. Structure, function, and evolution of cells. 4 Cr. (3-3).

BIO 115
HUMAN ANATOMY AND PHYSIOLOGY I
A medically oriented study of the structure and function of the human body. Intended for students specializing in nursing, medical technology, and biology. Lecture and laboratory. 4 Cr. (3-3).

BIO 121
BASIC ANATOMY AND PHYSIOLOGY
Study of human anatomy and physiology; cells, tissues, and tumors; nervous, excretory, reproductive, and endocrine systems; diseases; principles of chemistry, microbiology and physics. 3 Cr. (3-0).

BIO 123
GENERAL BIOLOGY II
Continuation of BIO 113. Structure, function, interrelationships, and evolution of organisms. 4 Cr (3-3). *Prerequisite: BIO 113 or permission of the instructor.*

BIO 125
HUMAN ANATOMY AND PHYSIOLOGY II
Continuation of BIO 115. 4 Cr. (3-3). *Prerequisite: BIO 115.*

BIO 201
MICROBIOLOGY
Biology of microorganisms including bacteria, rickettsiae, viruses, fungi, protozoa, and helminths. Relationships between microorganisms and higher forms of life. 4 Cr. (3-3). *Prerequisite: BIO 123.*

BIO 203
GENERAL BOTANY
Introduction to plant physiology, plant life cycles, and plant taxonomy. 4 Cr. (3-3). *Prerequisite: BIO 123.*

BIO 208
ECOLOGY
Includes the basic principles of the relationships of plants and animals to their environments. Physical factors, energy and chemical cycles in the ecosystem, population and community characteristics, ecological succession, aquatic and terrestrial ecology. Local terrestrial and aquatic environments. 4 Cr. (3-3). *Prerequisite: One semester of college level biology.*

BIO 290
SPECIAL STUDIES IN BIOLOGY
Special attention to particular abilities and interests of students. Individual guidance in advanced studies. Admission by permission of the instructor. (1-3, laboratory as required).

BROADCASTING (BRC)

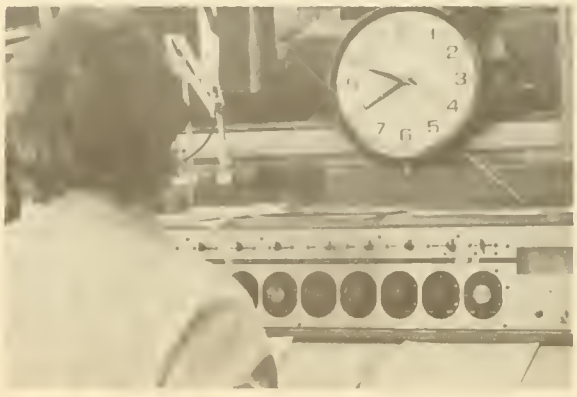
BRC 111
INTRODUCTION TO ANNOUNCING
Principles of announcing; practice in reading, voice inflecting, pronunciation of foreign names, and similar exercises; use of tape recorder in pre-recording repetitive items; lab instruction. 3 Cr. (3-0).

BRC 112
BASIC ELECTRONICS AND FCC LICENSING
Fundamental mechanics of operation of tape recorders, turntables, network facilities, and multispeaker systems; mechanics necessary to obtain FCC licensing; field visits to at least five different stations.
3 Cr. (3-0).

BRC 121
NEWS WRITING FOR BROADCASTERS
A brief review of English as it is structured for news writing. News writing, as it is peculiarly designed for the ear, for use in radio and television. Typical news stories are written and recorded. 3 Cr. (3-0).

BRC 122
IN-SERVICE TRAINING I
Supervised work in the preparation of typed news releases for local radio stations, or assignments to the college's closed-circuit television production teams. 2 Cr. (0-6).

BRC 231
ADVANCED ANNOUNCING
Special techniques employed in sports announcing, "talk" programs, and interviews; lab practice; practice on college audio-visual equipment. 3 Cr. (3-0).



BRC 232
RADIO PROGRAMMING
Determining basic character of a station; setting up a program to meet objectives; use of "public interest" programs and national, state, and local news to meet FCC requirements; maintaining balance between "talk" and "music" programs. 3 Cr. (3-0).

BRC 241
IN-SERVICE TRAINING II
Advanced work in the preparation of "public service" programs for local radio stations, or more responsible assignments on closed-circuit television. 2 Cr. (0-6).

BRC 242
STATION MANAGEMENT AND COMMUNITY RESPONSIBILITY
Study of problems related to serving community needs while making a profit; ratio of advertising to program time; character of station; meeting community responsibility through community interest programs; responsible use of editorial privilege. 3 Cr. (3-0).

BRC 243
IN-SERVICE TRAINING III
Major assignments with the audio-visual closed-circuit television system including the total preparation of at least one program from conception to final production. 2 Cr. (0-6).

BUSINESS MANAGEMENT (MGT)

MGT 110
PRINCIPLES OF BUSINESS
Introduction to the various types of business organizations, from a legal as well as administrative viewpoint. Emphasizes terminology as it is applied in business fields such as economics, finance, marketing, and business law. Includes basic concepts of management from the establishment of objectives through planning, organizing, policy formulation, taking action, measuring and evaluating, and performance improvement. 3 Cr. (3-0).

MGT 111
BUSINESS MATHEMATICS
Fundamentals of mathematics as applied to addition, subtraction, multiplication, and division; the use of percent, interest, depreciation and installment buying as used in the modern business world. 3 Cr. (3-0), 48 Hrs.

MGT 124
OFFICE PROCEDURES
Filing, telephone, and the physical arrangement and equipment of the office. Instruction and practice in the operation of ten-key, full-keyboard-adding-listing, rotary, electronic, and key-driven calculators, as well as duplicating, dictating and transcribing equipment are included. 2 Cr. (1-3).

MGT 125
FINANCE
Introduction to basic principles of finance. Includes the monetary and credit system, long and short-term business financing, agricultural, consumer, and international financing. Examines the background of early monetary standards and the weaknesses of the various systems. 3 Cr. (3-0).

MGT 230
BUSINESS COMMUNICATIONS
Application of communications skills; listening, reading, writing, and speaking accurately, briefly, and clearly. Students are trained to write all types of business communications. Includes the techniques of personal and interpersonal relationships that will enable the student to perform well and to advance in a career. 3 Cr. (3-0), 48 Hrs.

MGT 231
BUSINESS LAW I
Introduction to the judicial process, the social implications of law, the roles of government and labor unions in the formulation of business laws. In-depth study of rights and obligations as they apply to contract law. 3 Cr. (3-0).

MGT 235
BUSINESS PSYCHOLOGY
Psychological principles as applied to modern business. Encourages the proper attitudes toward work, toward people, and toward personal habits that will make the student aware of human relation skills needed to be an efficient employee and an effective leader, both on and off the job. 3 Cr. (3-0).

MGT 237
BANKING AND INVESTMENTS
Introduction to banking and investments. Explains how institutions can best meet the needs of society. Provides a foundation for understanding how banks operate today, and why and how they have evolved to their present state. 3 Cr. (3-0).

MGT 238
INSURANCE
Structure and practices of the insurance field. Various types of insurance policies and their uses and importance for personal and business success are stressed. 3 Cr. (3-0).

MGT 239
REAL ESTATE
Introduction to the field of real estate. Emphasizes the legal aspects of real property ownership and lease arrangements and the instruments commonly used in property transactions. Includes the functions and procedures of the real estate broker. 3 Cr. (3-0).

MGT 240
MARKETING
Illustrates various methods of merchandising and the channels of distribution from producer or manufacturer to the consumer. Includes government regulations, pricing, cost and branding, influence of consumers on marketing programs and current marketing trends. 3 Cr. (3-0).

MGT 241
BUSINESS LAW II
Incorporates the objectives of Business Law I and provides an in-depth study of the laws of agency and employment relation, commercial paper, personal property, bailments, and sales.
3 Cr. (3-0). *Prerequisite: MGT 231.*

MGT 242
RETAILING
Familiarizes the student with the field of retailing. Provides the technical and theoretical knowledge necessary for retail management employment. 3 Cr. (3-0).

MGT 243
SALES
Examines the positive role personal selling plays in the U.S. economy and documents the extent to which selling has aided our economic growth. Designed to show the role of sales in helping customers recognize and satisfy wants and needs. 3 Cr. (3-0).

MGT 247
SMALL BUSINESS MANAGEMENT
Introduction to the problems of owning and operating a business of one's own. Necessary personal characteristics, problems involved in buying and initiating a new business, and the activities of management are covered. 3 Cr. (3-0), 48 Hrs.

MGT 248
SUPERVISION AND HUMAN RELATIONS
Duties and responsibilities of the first-line supervisor and manager who holds up to a middle-level management position are studied from a behavioral point of view and in relation to how he/she influences others to accomplish organizational goals. Includes motivation, job enrichment; rules of leadership, and interpersonal relationships.
3 Cr. (3-0). *Prerequisite: MGT 110 or Division permission.*

C

CARPENTRY (BCT & CNC)

BCT 111
WOODWORKING FOR CARPENTERS
Basic principles and skills of hand and machine woodworking operations; special projects. 4 Cr. (2-6).

BCT 112
CONSTRUCTION CARPENTRY
Basic principles of frame construction: foundations and concrete formwork, types of building frames, strength of beams and girders, structural sheathing and house details; ideas and trends in construction methods and techniques. 4 Cr. (2-6).

BCT 121
ESTIMATING AND BLUEPRINTS
Introduction; types of drawings; lines, marks, symbols, conventions, scales, dimensions; quantities of material and cost estimating.
2 Cr. (2-0).

BCT 122
BLOCK CONSTRUCTION
Block laying skills in lab; practical work; classroom instruction covering materials used, types and sizes of blocks, principles of cost estimation.
6 Cr. (2-12).

BCT 123
SAFETY IN BUILDING TECHNOLOGY
The purpose of this course is to introduce students to an overview of laws and regulations concerning building construction safety with emphasis on OSHA, safe techniques, supervision and communication.
2 Cr. (2-0).

BCT 126
CONSTRUCTION JOB MANAGEMENT
The purpose of this course is to introduce the student to the complexity of the building construction industry, the interrelationships of the various trades, and the methods of communication and coordination among all trades and professions within the industry.
3 Cr. (3-0).

BCT 231
ROOF-FRAMING THEORY
Principles of rafter layout, use of framing square, problems of roof framing and construction, types of roofs and rafters. 3 Cr. (3-0).

BCT 232
BRICK CONSTRUCTION
Laying various patterns of brick to meet industrial standards with speed and accuracy; following architect's drawings; chimney, fireplace and wall projects. 5 Cr. (2-9).

BCT 241
ADVANCED CARPENTRY
Advanced woodworking techniques and fundamentals of finished carpentry; modern finishing materials; methods of application; exterior and interior trim; millwork, cornice work, roofing, siding, frame for openings, interior wall and ceiling material; trim and moldings; built-in cabinet work; stairbuilding; school sponsored construction work.
4 Cr. (2-6).

BCT 242
BUILDING CONSTRUCTION TECHNOLOGY
Advanced technical aspects of building construction, solution of practical problems; special advanced projects, campus construction work including house construction projects. 6 Cr. (3-9).

BCT 243
CONCRETE CONSTRUCTION
Principles of concrete design, water-cement ratio, proportions of ingredients, reinforced concrete, study of concrete footers and walls, finishing with hand and power trowel equipment, proper methods of curing and testing. 3 Cr. (2-3).

BCT 513
BUILDINGS AND SPECIFICATIONS
Develops techniques in reading and interpretation of blueprints and specifications. Instruction in reading plan views, elevations, and details as typical of working drawings. Reviews the math principles involved in understanding and using these drawings. Stresses specifications and their relationship to the working drawings. 3 Cr. (3-0).

BCT 524
BUILDING TRADES & ESTIMATING
Study of processes and procedures gives working knowledge of various trades and shows how realistic construction costs are obtained for completed projects. Includes both residential and commercial estimating with the emphasis on types of estimates and quantity take-offs. 3 Cr. (3-0).

CNC 711
SURVEYING, LAYOUT & BLUEPRINT READING (8 weeks)
Interpretation of building codes, specifications, and blueprints; types and erection of batter boards; use, care and operation of builders level, simple surveys, 3-4-5 triangle calculations; determination of depth of excavation. 48 Hrs. (2-4).

CNC 712
CONCRETE AND BLOCK (8 weeks)
Study and application of methods and materials used in laying out and building block and concrete walls; principles used in forming, pouring and finishing concrete footings, reinforced concrete and concrete slabs. Appropriate tools are introduced and instruction in their proper use and care is offered. 152 Hrs. (3-16).

CNC 713
BRICK AND STONE (8 weeks)
Study of brick and stone products currently used in construction, with emphasis on common methods within the shop, and, when possible, through permanent projects outside the shop. 200 Hrs. (5-20).

CNC 721
FRAMING AND SHEATHING (8 weeks)
Principles and applications of framing and sheathing through shop and outside projects. Emphasizes new and traditional materials used in this phase of construction. 200 Hrs. (5-20).

CNC 722
EXTERIOR FINISH (8 weeks)
Develops skills in the selection and use of siding and roofing materials. Offers experience in door and window framing, exterior trim, cornice work, insulation materials and methods. 200 Hrs. (5-20).

CNC 831
INTERIOR FINISH (8 weeks)
Instruction in the selection and application of materials used for interior walls, ceilings and floors. Opportunity for the student to use these materials, and the tools associated with them, through shop and permanent installations. 176 Hrs. (5-17).

CNC 832
INTERIOR TRIM (8 weeks)
Presents a broad area of building construction, including door hanging, moldings and trim, built-in features, stair building and kitchen cabinets. Offers the student a wide range of information and, when possible, provides experience in the use of the methods and materials studied. 176 Hrs. (5-17).

CNC 833
BLUEPRINTS AND SPECIFICATIONS
Develops techniques in reading and interpretation of blueprints and specifications. Instruction in reading plan views, elevations, and details as typical of working drawings. Reviews the math principles involved in understanding and using these drawings. Stresses specifications and their relationship to the working drawings. 48 Hrs. (3-0).
Prerequisites: CNC 712, CNC 713, CNC 721, CNC 722.

CNC 841
SPECIALTY AND RELATED TRADES (8 weeks)
Surveys specialty and related trade areas, from wall and floor coverings through fundamental electrical wiring and plumbing and heating. Instruction and practical experience. 152 Hrs. (3-16).

CNC 842
PRACTICAL CONSTRUCTION EXPERIENCE (8 weeks)
Utilization of the knowledge and skills acquired in the construction curriculum. Supervised permanent projects on and around campus are used as an instructional vehicle. When practical, the student participates in all stages of the project from planning through construction. 152 Hrs. (0-19).

CNC 843
BUILDING TRADES ESTIMATING
Study of processes and procedures gives working knowledge of various trades and shows how realistic construction costs are obtained for completed projects. Includes both residential and commercial estimating with the emphasis on types of estimates and quantity take-offs. 48 Hrs. (3-0). *Prerequisite: CNC 833.*

CNC 844
PERSONAL AND JOB ORIENTATION
Introduction to practical techniques in self-evaluation stressing the importance of values, interests, personality, and attitude in determining work success. Emphasis on establishing realistic work goals and expectations based on the student's self-knowledge. Surveys problems the beginning worker faces preparing to take his/her place in the world of work. Methods and techniques of gaining and maintaining employment are discussed in detail. 48 Hrs. (3-0).

CHEMISTRY (CHM)

CHM 100
FUNDAMENTALS OF CHEMISTRY
Introductory treatment of basic concepts of inorganic and organic chemistry. Essentially non-mathematical. Intended for the student who has never had chemistry or whose background is very weak. Prepares the student for CHM 105 or CHM 111. 4 Cr. (3-3).

CHM 105
GENERAL ORGANIC CHEMISTRY
Basic introduction to the major classes of organic compounds, including brief review of some inorganic concepts as related to organic reactions. Intended for non-science students desiring to fulfill a lab science requirement and for science students as a preliminary introduction to CHM 203. 4 Cr. (3-3). *Prerequisites: High school chemistry or permission of the instructor.*

CHM 107
GENERAL ORGANIC CHEMISTRY
Basic introduction to the major classes of organic compounds, including brief review of some inorganic concepts as related to organic reactions. 3 Cr. (3-0). Cannot be used to satisfy lab science requirements. *Prerequisites: High school chemistry or permission of the instructor.*

CHM 111
GENERAL CHEMISTRY I
Principles of modern chemistry with emphasis on inorganic aspects. Intended for science majors and non-science students desiring to fulfill lab science requirement. Prepares the student to continue into CHM 121 or CHM 203. 4 Cr. (3-3). *Prerequisites: High school algebra or equivalent; high school chemistry desirable but not required.*

CHM 121
GENERAL CHEMISTRY II
Continuation of CHM 111. Intended for science majors and non-science students desiring to fulfill a lab science requirement; the latter may desire to elect CHM 105 instead. 4 Cr. (3-3). *Prerequisites: CHM 111 or high school chemistry with permission of the instructor.*

CHM 203
ORGANIC CHEMISTRY I
Study of the major classes of organic compounds with emphasis on molecular structure and reaction mechanisms. Intended for science majors. 4 Cr. (3-3). *Prerequisites: CHM 111, or CHM 105, or high school chemistry with permission of the instructor.*

CHM 204
ORGANIC CHEMISTRY II
Continuation of CHM 203. 4 Cr. (3-3). *Prerequisites: CHM 203 or equivalent.*

CHM 290
SPECIAL TOPICS IN CHEMISTRY
A flexible course intended to meet special needs or interests of science or non-science students. Lectures may be supplemented with lab work as needed. 1 to 4 Cr. *Prerequisite: Permission of the instructor.*

CIVIL ENGINEERING TECHNOLOGY (CET)

CET 111
MATERIALS OF CONSTRUCTION
Properties of concrete, aggregates, asphalt, steel, wood, plastics, clay products and miscellaneous construction materials; methods of testing and sampling construction materials; application of data on materials to design of structure. 2 Cr. (2-0).

CET 112
ENGINEERING DRAWING
Use of instruments; lettering, geometric constructions; orthographic projection; dimensioning; sketching. Architectural drawing including plans, elevations, details, and site plans. Structural drawing including uses and detailing for wood, concrete, and steel structures. 3 Cr. (1-6).

CET 113
INTRODUCTORY SURVEYING
Introduction to surveying; use and care of instruments; simple surveys with compass, transit, level, and tape. 2 Cr. (1-3).

CET 121
PLANE SURVEYING
Theory and practice of plane surveying; traverses and elementary triangulation; differential and reciprocal leveling; stadia and construction surveys; plane table surveys. 4 Cr. (1-9). *Prerequisites: CET 113, MTH 103; Corequisite: MTH 104.*

CET 122
TOPOGRAPHIC DRAWING & CARTOGRAPHY
Use of conventional signs in mapping, the construction of large-scale topographic maps, logical contouring, photographic interpretation. Methods of plotting, use and construction of small scale maps, earth's coordinate system, map projections, enlargement and reduction of maps, scribing techniques, photographic color separation, typography, reproduction, and processing. 3 Cr. (1-6). *Prerequisite: CET 112.*

CET 231
ROUTE SURVEYING
Highway curves (horizontal and vertical); plus and offset; X-sections; field astronomy; route location. 4 Cr. (1-9). *Prerequisites: CET 121, MTH 104.*

CET 232
ORIGIN, DISTRIBUTION & BEHAVIOR OF SOILS
Geologic origin of soils; minerals, rocks, rock structures, weathering, glaciation, erosion and deposition. Distribution of soils in North America; residual, glacial and water-wind deposited soils. Soil characteristics and behavior; engineering classification, volume-weight relationships, physical properties, supporting capabilities for foundation elements and sampling methods. 3 Cr. (2-3). *Prerequisite: MTH 104.*

CET 233
STATICS
Basic principles of statics; coplanar and non-coplanar force systems; friction; centroids and moments of inertia; hydrostatic pressures and loads. 3 Cr. (3-1). *Prerequisite: MTH 104.*

CET 234
HIGHWAY ENGINEERING TECHNOLOGY
Highway economy, highway characteristics, drainage and structures, super-elevation, roadway construction, concrete-mix design, hydrology (precipitation and runoff), mass diagram, contracts and specifications. 3 Cr. (3-0). *Corequisite: CET 231.*

CET 241
ADVANCED SURVEYING
Theory and practice of boundary surveys; city surveys; mine surveys; hydrographic surveys and steam gaging; bridge surveys; survey control, and state coordinate systems; public land surveys; precise leveling and triangulation. 3 Cr. (2-3). *Prerequisite: CET 231.*

CET 242
FLUID MECHANICS
Mechanics of fluids; fluid flow in conduits and around bodies; liquid flow in open channels; friction and energy loss; fluid measurements; similitude and dimensional analysis. 3 Cr. (2-3). *Prerequisites: PHS 100, CET 233.*

CET 243
STRENGTH OF MATERIALS
Engineering materials and properties; shear and moments in beams; stresses in beams; design of beams; deflection of beams; columns. 3 Cr. (3-0). *Prerequisite: CET 233.*

CET 244
PHOTOGRAMMETRY
Use and application of aerial photographs; mapping by photogrammetric methods; geometry of aerial photographs; stereoscopy; overlapping aerial photographs; aerial triangulation; flight planning; cost estimation; contracts and specifications; remote sensing. 3 Cr. (2-3). *Prerequisites: CET 122, MTH 104.*

COMPUTER OPERATOR (COP)

COP 710
BASIC COMPUTER OPERATIONS
Introduction to the operation of all types of equipment found in computer installations. Includes mounting tapes and disc packs and operating line printers and card reader-punches. Students will operate the keypunch, sorter, and other unit record equipment. 4 Cr. (3-3), 96 Hrs.

COP 711
COMPUTER OPERATIONS INTERNSHIP I
Provides practical experience in computer operations by assignment to the college's computer center and the data communications laboratory. 2 Cr. (0-6), 96 Hrs.

COP 720
ADVANCED COMPUTER OPERATIONS
Introduction and training in the non-physical aspects of data processing operations. Emphasizes "software" operations. Concentrates on the use of EDP manuals, programs which allow the computer to operate efficiently, and the actual operation of a computer center. 4 Cr. (4-0), 64 Hrs. *Prerequisite: COP 710.*

COP 721
COMPUTER OPERATIONS INTERNSHIP II
Continuation of COP 711. 2 Cr. (0-6), 96 Hrs *Prerequisite: COP 711.*

COP 722
COMPUTER TECHNOLOGY
Introduces additional features of computer hardware and processing concepts. Includes a survey of computer hardware and comparison of various types of computers, purpose and operation of computer terminals, time-sharing, telecommunications and mini-computers. Fundamental understanding of electronics. On-the-job training in the WACC computer center and various industrial locations. 3 Cr. (3-0), 48 Hrs. *Prerequisites: COP 711, CSC 118.*

COMPUTER SCIENCE (CSC)

CSC 100
FORTRAN IV PROGRAMMING
Concepts of data processing systems, methods and applications; programming languages and program structures; FORTRAN IV programming language problem analysis, flow-charting and computer solution of numerical and non-numerical problems. 3 Cr. (3-0).

CSC 117
RPG PROGRAMMING
Beginning course in Report Program Generator (RPG) Programming. The student will learn to write, compile and execute RPG programs. The programs written for this course will be business applications and business-oriented problems. 3 Cr. (3-0).

CSC 118
FUNDAMENTALS OF COMPUTER SCIENCE
Introduction to the field of computer science. Specific topics covered include punch card equipment, records and files, concepts of computer systems, logic and problem solving techniques, flowcharts, algorithms, data representation, file organization, and operating procedures. 3 Cr. (3-0).

CSC 127
ASSEMBLER LANGUAGE PROGRAMMING
Beginning course in Basic Assembler language. Includes data representation, instruction, coding; problem analysis, flow-charting; program writing, execution, debugging, and documentation; job control and operating systems. 4 Cr. (4-0). *Prerequisite CSC 118 or Division permission.*

CSC 128
COBOL PROGRAMMING I
Study and programming in the COBOL computer language; language elements and divisions, program writing, execution, and diagnostics; advanced programming concepts and techniques. 3 Cr (3-0). *Prerequisite: CSC 118*

CSC 233
SYSTEMS DEVELOPMENT AND APPLICATIONS I
Analysis and design of data processing systems; systems investigation; input, output designs; record and file designs; information structures; problem definition, documentation, coding approaches; independent development of an assigned system problem by the student
3 Cr. (3-0). *Prerequisites. CSC 118 and a programming language.*

CSC 236
FORTRAN IV AND LINEAR PROGRAMMING
Introduction to FORTRAN IV language programming as applied to business and mathematics problems. Includes subprograms, table handling, linear programming, use of the plotter to draw graphs, and utilization of magnetic tape and disc. 4 Cr. (4-0). *Prerequisites: CSC 118, MTH 201, or programming language.*

CSC 238
COBOL PROGRAMMING II
Introduction to structures for representing the logical relationship between elements of information and the techniques for operating upon information structure using tape and disc storage. Examines how a complex computer programming task can be subdivided for maximum clarity, efficiency, and ease of maintenance and modification. Concept of programming style will permeate most of the material presented. Careful verification of program operation and documentation of programs will be emphasized. 3 Cr. (3-0). *Prerequisite: CSC 128.*

CSC 243
SYSTEMS DEVELOPMENT AND APPLICATIONS II
Independent development of an assigned systems problem and/or continuation of problem assigned in CSC 233; design criteria, logic diagrams and coding; manual and operating procedures and manuals; proving the system; feedback and evaluation. 3 Cr. (3-0). *Prerequisites: CSC 128, CSC 233.*

CSC 245
COMPUTER SOFTWARE SYSTEMS
Provides a working view of hardware/software configurations as integrated systems. Introduction to execution software, multiprogramming and operation software. Utility routines and file systems will be investigated. Basic components of file and communication systems will be presented and analyzed. The functioning of these systems as integral components of an information system will be stressed. 3 Cr. (3-0). *Prerequisite: At least one programming language.*

CSC 246
PL/1 PROGRAMMING
Study and programming in the PL/1 computer language. Programming concepts and techniques applied to business and mathematical problems. 3 Cr. (3-0). *Prerequisites: CSC 128, CSC 236, or Division permission.*

CSC 247
INTERNSHIP IN COMPUTER SYSTEMS
Supervised individual research projects or assignment to an industrial data processing site for on-the-job training. 3 Cr. (0-9). *Prerequisite: Two semesters of Computer Science.*

COOPERATIVE EDUCATION (CED)

Co-op students will register for co-op experience using the numbers below. However, credit for the co-op experience will be shown on the transcript with the number of the course(s) in the student's curriculum for which co-op credit is being given, followed by the letter "C." Example: ABC 831C Auto Body Repair V. This indicates that the student has received credit for ABC 831 through participating in a co-op experience.

CED 101
COOPERATIVE EDUCATION I
Primarily designed for the associate degree student wishing to participate in a related educational work experience. The student will be placed with an approved employer in a job integrating the skills and knowledge of his or her curriculum. Variable 1-6 Cr.

CED 102
COOPERATIVE EDUCATION II
Primarily designed for the associate degree student who has successfully completed CED 101 and wishes to participate in a second co-op experience with the same or a new employer.
Variable 1-6 Cr.

CED 103
COOPERATIVE EDUCATION V
This course is designed to assist the cooperative education student through the transition from college to the "world of work'." A series of six seminars will emphasize the acquisition of job application skills, adjustment to the work environment, and the development of sound interpersonal relationships. A portion of the course will be devoted to methods of reporting the day-to-day and total experiences gained while on the job. CED 103 is required of all co-op students prior to the initial job placement. No credit.

CED 701/CED 801
COOPERATIVE EDUCATION III
Primarily designed for the certificate student wishing to participate in a related educational work experience. The student will be placed with an approved employer in a job integrating the skills and knowledge of his or her curriculum. CED 701 indicates a co-op course taken during the student's first year; CED 801 indicates a co-op course taken during the student's second year. Variable 48-500 Hrs.

CED 702/CED 802
COOPERATIVE EDUCATION IV
Designed for the certificate student who has successfully completed CED 701 or CED 801 and desires a second co-op placement with the same or a new employer. CED 702 indicates a co-op course taken during the student's first year; CED 802 indicates a co-op course taken during the student's second year. Variable 48-500 Hrs.

D

DENTAL HYGIENE (DHG)

DHG 100
INTRODUCTION TO DENTAL HYGIENE
An introduction to the techniques of primary preventive measures. Use and care of dental equipment is included. 4 Cr. (2-6).

DHG 101
CLINICAL DENTAL HYGIENE I
Lectures are integrated with practical experience in the clinic. Students begin to provide preventive oral health services. 4 Cr. (3-3). *Prerequisite: DHG 100.*

DHG 115
ORAL ANATOMY AND HISTOLOGY
Study of the development and structure of the oral and facial regions. A self-paced program supplements the course. 3 Cr. (3-0).

DHG 120
ORAL RADIOLOGY
Principles, techniques, and interpretation of intra-oral and extra-oral radiographs. The importance of accuracy and the safe use of radiation in the dental office is stressed. 2 Cr. (1-3). *Prerequisite: DHG 115.*

DHG 125
DENTAL MATERIALS
Principles and practice of the physical and chemical properties of dental materials. 3 Cr. (2-3). *Prerequisite: DHG 115.*

DHG 200
CLINICAL DENTAL HYGIENE II
Experience in the techniques of performing the complete oral prophylaxis. Additional emphasis is placed on expanded duties. 4 Cr. (0-12). *Prerequisite: DHG 101.*

DHG 201
CLINICAL DENTAL HYGIENE III
Increased practice in preventive and other oral hygiene procedures for both adult and child patients. 4 Cr. (0-12). *Prerequisite: DHG 200.*

DHG 235
PERIODONTICS
Prevention and treatment of periodontal disease. A study of healthy periodontium combined with clinical diagnosis, prevention, and treatment of periodontal disease. Self-paced instructional units supplement the course. 1 Cr. (1-0). *Prerequisite: DHG 239.*

DHG 237
PHARMACOLOGY AND EMERGENCIES
A study of properties, dosage, actions, and reactions of drugs stressing those related to dentistry. Principles of first aid and emergency treatment are included. 3 Cr. (3-0).

DHG 239
GENERAL AND ORAL PATHOLOGY
Study of general and oral disease with emphasis on those diseases and anomalies related to the oral cavity 2 Cr. (2-0).

DHG 240
DENTAL PRACTICE ORIENTATION
Ethics and jurisprudence—Office procedures and management. 1 Cr. (1-0). *Prerequisite: DHG 200.*

DHG 241
COMMUNITY DENTAL HEALTH
Philosophy of community dental health. Techniques of teaching preventive dental health to groups, school health fluoridation, expanding dental programs, use of statistical materials. Through field experience, students will become familiar with community agencies. 2 Cr. (2-0).

DHG 243
DENTAL SPECIALTIES
Discussion of pedodontics, endodontics, oral surgery, operative dentistry, combined with practice in expanded duties and functions. 3 Cr. (2-3). *Prerequisite: DHG 200.*

DENTAL LABORATORY TECHNICIAN (DLT)

DLT 111
INTRODUCTION TO DENTAL TECHNOLOGY (FUNDAMENTALS)
Introduction to the terminology, materials, tools, equipment, and general area. Use of the above and the necessary safety precautions. Various basic techniques are also presented. 5 Cr. (3-6).

DLT 112
DENTAL MATERIALS
Familiarizes trainees with the history, names, types, physical and mechanical properties, uses, proper handling and limitations of dental materials, including impression materials, waxes, metals, gypsum, compounds, resins, and porcelains. 3 Cr. (3-0).

DLT 121
DENTURE TECHNIQUES I
Explains the qualities necessary for satisfactory dentures. Includes specialized techniques in tooth selection, arrangement, waxing and processing, immediate denture technique and various repair, reline and rebasing procedures. 6 Cr. (3-9).

DLT 122
ORAL ANATOMY
A study of the skull, including its blood and nerve supply, muscles, joints, surfaces, glands and teeth. 3 Cr. (3-0).

DLT 231
DENTURE TECHNIQUES II
Utilizing training from DLT 121 through practical application on actual cases. Improves skills, quality, accuracy and speed, in a productive setting. 6 Cr. (1-15). *Prerequisite: DLT 121.*

DLT 232
ODONTOGRAPHY
A study of tooth anatomy, including lectures and bench procedures. Drawing of teeth to scale and carving to scale in plaster and wax. 4 Cr. (2-6).

DLT 241
CAST PARTIAL TECHNIQUES I
Includes an introduction to removable partial appliances, terminology, phases of construction, use of surveyor, design, connectors, rests and retainers. Also waxing, spruing, investing, casting, finishing, and polishing. 6 Cr (3-9).

DLT 242
CROWN AND BRIDGE I
Begins with the historical background of crown and bridge procedures and techniques, continues on to include the latest in the construction of inlays, crowns, and bridges from impression to completion, including soldering and veneering. 5 Cr. (3-6).

DLT 251
CAST PARTIAL TECHNIQUES II
Utilizes training from DLT 241 through practical application on actual cases. The improving of skills, quality, accuracy and speed, in a productive setting. 6 Cr. (1-15). *Prerequisite: DLT 241.*

DLT 252
CROWN AND BRIDGE II (DENTAL CERAMICS)
Begins with a discussion of the history of the art of ceramics. Covers the various compositions of dental porcelains. Manipulation, carving, firing, and glazing of porcelain, with characterization and shading of porcelain stressed, using stains and modifiers. Techniques of fusing and soldering porcelain to gold. 5 Cr. (3-6). *Prerequisite: DLT 242.*

DEVELOPMENTAL STUDIES (CHD, ENL, MTH, RDG)

CHD 100
VALUE CLARIFICATION AND DECISION MAKING (8 weeks)
This course is designed to enhance a student's self understanding as well as to provide a "skills" orientation toward coping with life problems. The basic tenets of the course recognize that many of the skills, techniques, and strategies that individuals use in various life situations can be adapted and are almost universally applied in other kinds of life difficulties. The course attempts to show students that a "life plan" is complete only when one considers all aspects of the human condition as important. 1 Elective Cr. (1.5-1.5).

CHD 101
CAREER EXPLORATION (8 weeks)
Specific steps in the career decision making process will be taught. Students will explore the world of work as it relates to their values, interests and abilities. The course will be a step by step process culminating in teaching students how to make career decisions.
1 Elective Cr. (1.5-1.5).

ENL 011
BASIC ENGLISH
This course emphasizes writing skills: organization, structure, content, style, and mechanics. Individualized instruction, instructor control of the writing process, limited class size, and personalization of grammar instruction are characteristic of the course. 3 Institutional Cr. (3-0).

MTH 001
ARITHMETIC
Comprehension of the basic concepts and skills of arithmetic to prepare students for required mathematics courses. Pre and post-tests are used to prescribe and insure mastery of units covered.
3 Institutional Cr. (3-0).

MTH 002
BASIC ALGEBRA
Basic skills and concepts of arithmetic and algebra are presented according to the learner's aptitudes and needs. Pre and post-tests are used to prescribe and insure mastery of units covered. The course may require more than one semester for mastery of the objectives.
3 Institutional Cr. (3-0).

RDG 010
READING IMPROVEMENT
Basic reading improvement for students with limited success in previous reading performance. Differences in ability and background will determine areas each student will pursue. Emphasis on comprehension, vocabulary, speed, spelling and taking notes from textbook assignments. Audio tapes, reading machines, individualized materials, and handout sheets available to encourage individual learning. 3 Institutional Cr. (3-0).

RDG 099
INDEPENDENT STUDY
A course of study designed to meet the specific needs of students who need individualized and personalized assistance in gaining reading skills or study skills. No credit. (0-3).

RDG 101
COLLEGE READING AND STUDY SKILLS
Designed to enable students to acquire or review basic reading and study skills essential for success in college courses. Specific reading skills develop comprehension, vocabulary, and speed. Effective study habits and skills include outlining, summarizing, underlining, notetaking, and test-taking techniques. 2 Elective Cr. (2-0).

RDG 102
COLLEGE STUDY SKILLS (5 weeks)
Designed to enable students to develop effective study habits and skills. Emphasis on outlining, summarizing, underlining, notetaking and test-taking techniques. 1 Elective Cr. (2-2)

RDG 103
LIBRARY SKILLS (5 weeks)
Designed to enable students to become familiar with and to locate and use materials in the WACC library. Emphasis on the preparation of the working outline of a research paper. 1 Elective Cr. (2-2).

DIESEL MECHANICS (DMC)

DMC 711
BASIC DIESEL MECHANICS I (8 weeks)
Precision mechanical measurement. Basic fastening devices. Gasoline and diesel engine operation and service. Principles of electricity and ignition systems. 192 Hrs. (5-19).

DMC 712
BASIC DIESEL MECHANICS II (8 weeks)
Introduction to diesel engines. Automotive electrical systems, with emphasis on cranking and charging circuits. 192 Hrs. (5-19).

DMC 721
DIESEL MECHANICS I (8 weeks)
Four-cycle diesel engine repair and overhaul. Emphasis on diesel truck engines. 192 Hrs. (5-19). *Prerequisites: DMC 711, DMC 712.*

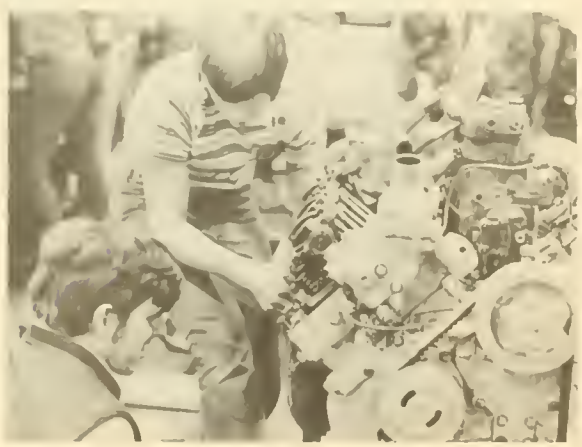
DMC 722
DIESEL MECHANICS II (8 weeks)
Two-cycle diesel engine repair and overhaul. Application of diesel power including trucks, basic stationary and marine. Air induction system overhaul and troubleshooting. Stationary and marine operating procedures. Basic air conditioning/refrigeration principles. 192 Hrs. (5-19). *Prerequisite: DMC 721.*

DMC 831
DIESEL MECHANICS III (8 weeks)
Basic hydraulics. Introduction to diesel fuel injection systems. Principles of governing. Mechanical governing. 192 Hrs. (5-19). *Prerequisites: DMC 722 or SOE 723 or AMC 722 or AMD 112.*

DMC 832
DIESEL MECHANICS IV (8 weeks)
Fuel injection systems. Hydraulic governors. 192 Hrs. (5-19). *Prerequisite: DMC 831.*

DMC 841
DIESEL MECHANICS V (8 weeks)
Truck power train. Clutch, transmission, driveline and differential. 192 Hrs. (5-19).

DMC 842
DIESEL MECHANICS VI (8 weeks)
Truck chassis, brakes and suspension. State inspection procedures. 192 Hrs. (5-19).



DRAFTING—ENGINEERING (EDT)

EDT 101
MECHANICAL DRAWING
Offered to students who are enrolled in curricula other than drafting. Use of drawing instruments, lettering, geometric construction, orthographic projection, technical sketching, isometric and oblique sketches, dimensioning, sections, auxiliary views, threads and fasteners, working drawings, and blueprint reading. 2 Cr. (1-3).

EDT 102
ENGINEERING DRAFTING
Practical application of drafting to the electrical construction field for both domestic and commercial use; house diagrams with circuit schematics, wiring diagrams and complete bill of material and layout diagrams for public facilities such as the lighting system for a small community. 2 Cr. (1-3).

EDT 103
GEARS AND CAMS
A study of motion transfer through the use of gears and cams. 2 Cr. (1-3).

EDT 104
AIRCRAFT DRAWINGS
Aircraft blueprint reading for aviation maintenance technicians with emphasis on the reading and interpretation of multiview drawings, including installation diagrams, schematics, the use of charts and graphs. Making three dimensional sketches for repair and alterations to aircraft. 64 Hrs. (1-3).

EDT 105
BLUEPRINT READING
A study of blueprint reading for welders with emphasis on the reading and interpretation of multiview drawings involving dimensions, notes, specifications and welding symbols. 48 Hrs. (1-2).

EDT 106
INDUSTRIAL PROCESSES
Theories and applications in the principal metal removal, forming, joining, and casting processes. 2 Cr. (2-0). 32 Hrs.

EDT 111
BASIC DRAFTING I (8 weeks)
Use of drawing instruments, lettering, geometric construction, orthographic projection, isometric drawings, sectioning, dimensioning, auxiliary views, revolutions and freehand sketching. 4 Cr. (4-12).

EDT 112
BASIC DRAFTING II (8 weeks)
Inclusion of screwthreads and fastening devices, working assembly and installation drawings; axonometric projection; study of sheet metal intersections and developments. 4 Cr. (4-12). *Prerequisite: EDT 111.*

EDT 121
POWER TRANSMISSION (8 weeks)
A study of power and motion transfer through the use of gears and cams and other devices. 4 Cr. (4-12).

EDT 122
MECHANISMS (8 weeks)
A study of power and motion transfer through the use of various linkages and mechanisms. 4 Cr. (4-12).

EDT 201
DESCRIPTIVE GEOMETRY
Principles of orthographic projection; fundamental problems involving the relationship of points, lines and planes in space; intersecting lines and planes; graphical computations for bearings and slopes of lines, strike and dip of planes; solution of problems of intersection of planes and solids. 3 Cr. (1-6). *Prerequisite: High school background in drafting.*

EDT 231
DETAIL AND ASSEMBLY DRAWINGS (8 weeks)
Accurate working drawings, sub-assemblies and assemblies; drawing details from sketches and other engineering specifications; applied strength of materials; bearings; lubrications; elementary design and simplified drafting. 4 Cr. (4-12). *Prerequisite: EDT 112.*

EDT 232
APPLIED DRAFTING TECHNIQUES (8 weeks)
Complicated detail drawings from industrial castings; comprehensive study of close tolerance dimensioning; introduction to fluid mechanics; metric conversion. 4 Cr. (4-12). *Prerequisite: EDT 231.*

EDT 241
ADVANCED DETAIL I (8 weeks)
Redesign of industrial castings into weldments; detail drawings from engineering layouts; comprehensive study of welding, piping and layouts; strength of material as applied to weldments and piping design. 4 Cr. (4-12).

EDT 242
ADVANCED DETAIL II (8 weeks)
Advanced study and application of drafting using layouts from industry to make detail, assembly and sub-assembly drawings; included are geometric tolerancing, true position dimensioning and surface specifications in accordance with industrial standards; structural drafting and reprodrafting 4 Cr. (4-12). *Prerequisite: EDT 232.*

DRAFTING—MECHANICAL (MDT)

MDT 711
DRAFTING TECHNIQUES I (8 weeks)
Mechanical drawing; lettering, geometric drawing; orthographic projection; pictorial projections; sectioning, dimensioning; auxiliary views; revolutions; free-hand sketching; reproduction processes. 192 Hrs. (1-23).

MDT 712
DRAFTING TECHNIQUES II (8 weeks)
Threads, fasteners, springs; working drawings; assembly, detail and installation drawings. 192 Hrs. (1-23).

MDT 721
APPLIED DRAFTING I (8 weeks)
Study of sheet metal intersections and developments, cones, transition pieces, irregular shapes; introduction to making accurate detail drawings from industrial machine parts. 192 Hrs. (1-23).

MDT 722
APPLIED DRAFTING II (8 weeks)
Accurate detail drawings from complicated industrial machine parts, conforming to industrial and military standards; comprehensive study of close tolerance dimensioning. 192 Hrs. (1 23).

MDT 801
DRAFTING
Simple machine layout; completion of the necessary drawings according to industrial practices. 208 Hrs. (1-12). *Prerequisite: Division Director approval.*

MDT 831
APPLIED DRAFTING III (8 weeks)
Study of power transmissions, pulleys, sheaves, gears, sprockets. 192 Hrs. (1-23).

MDT 832
APPLIED DRAFTING IV (8 weeks)
Study of the mechanisms used to create motion in machine cams, linkages. 192 Hrs. (1-23).

MDT 841
APPLIED DRAFTING V (8 weeks)
Redesigning industrial castings into weldments; detail drawings from engineering layouts; comprehensive study of welding, piping and layout drawings. 192 Hrs. (1-23).

MDT 842
APPLIED DRAFTING VI (8 weeks)
Advanced study of drafting applications using industrial layouts to make detail, assembly, sub-assembly drawings; geometric tolerancing; true position dimensioning; surface finish specifications in accordance with industrial and military standards. 192 Hrs. (1-23).

NOTE: Courses to be taken in sequence as listed unless approval is granted by the Division Director.

E

ECONOMICS (ECO)

ECO 201
PRINCIPLES OF ECONOMICS
An introductory course dealing primarily with the United States economy, its make-up and problems. 3 Cr. (3-0).

ECO 202
ECONOMIC ANALYSIS
A study of the theory of the firm, and analysis of economic problems involved in public policy decisions. Required of students following the business administration curriculum, or intending to major in economics. 3 Cr. (3-0). *Prerequisite: ECO 201.*

ECO 290
SPECIAL STUDIES IN ECONOMICS
A flexible course designed to meet special needs of economics students. 1-3 Cr. (1 to 3-0). *Prerequisite: Permission of the instructor.*

EDUCATION (EDU)

EDU 111
INTRODUCTION TO EDUCATION
Foundations of education: historical, economic, philosophical, and social. Their implications for present-day education. 3 Cr. (3-0).

EDU 121
CHILDREN'S AND YOUNG ADULT LITERATURE
Comprehensive survey of children's and young adult literature. Provides a basic knowledge and understanding of authors, illustrators, and literary forms as background for work in a public area. 3 Cr. (3-0).

ELECTRICAL (ELC & ELT)

ELC 711
DIRECT CURRENT FUNDAMENTALS
Study of basic electrical laws, electrical terms, batteries, electrostatics, electrical meters and instruments, direct-current machinery. 160 Hrs. (5-5).

ELC 712
BASIC WIRING LAB
Lab course in tools and materials of trade; proper use and care of hand tools; instruction in wiring of these basic circuits; residential lighting and receptacle circuits, low voltage switching and control circuits; use of electrical underwriters rules in color coding. 2 Cr. (1-5), 96 Hrs.

ELC 713
MOTOR REWINDING I
Electrical and mechanical features of various single phase motors; lab work and developing knowledge and skill in rewinding and repairing single phase motors. 96 Hrs. (1-5).

ELC 721
BASIC MOTOR CONTROL
Theory and lab assignment involving wiring of starting and control equipment for DC and AC motors; including circuitry for start-stop stations, forward-reverse and jogging push button stations, and some speed control. 96 Hrs. (3-3).

ELC 722
ALTERNATING CURRENT FUNDAMENTALS
Study of nature of alternating current electricity as related to residential, commercial and industrial power use; laws and formulas needed for the solution of problems in the use of AC power, study of AC machinery; lab work for demonstrating AC electrical principles; practical experience in hook-up of equipment and instruments. 160 Hrs. (5-5). *Prerequisite: ELC 711.*

ELC 723
RESIDENTIAL BLUEPRINT AND CODE
Study of residential wiring circuits, low voltage remote control switching and electric heating, study of the National Electrical Code book and its provisions dealing with residential and other types of wiring. 64 Hrs. (4-0).

ELC 832
ADVANCED MOTOR CONTROL
Theory and laboratory assignments further jobs learned in ELC 721, with the study and use of speed controls, plugging equipment for braking and dynamic braking, timing relays involving pneumatic and dash pot types. 96 Hrs. (1-5). *Prerequisite: ELC 721.*

ELC 833
BASIC ELECTRICAL CONSTRUCTION LAB
Experience in the use and installation of electrical materials; house wiring circuits, wiring boxes of many kinds, armored cable, wire mold and romex, fluorescent and incandescent light switches and receptacle circuits. 112 Hrs. (1-6). *Prerequisite: ELC 712*

ELC 834
BASIC ELECTRONICS FOR INDUSTRY
Basic electronics concepts used in industrial control. Study of vacuum tubes, electronic circuits, solid state devices, symbols, and motor circuits. Application of these devices in laboratory practices demonstrates use in industry. 160 Hrs. (4-6). *Prerequisite: ELC 722.*

ELC 843
INDUSTRIAL MOTOR CONTROL
Study of industrial control circuitry involving theory of SCR equipment, static control and circuitry, logic; laboratory experience in designing and constructing control panels used in industry. 96 Hrs. (3-3). *Prerequisite: ELC 832.*

ELC 844
COMMERCIAL & INDUSTRIAL BLUEPRINT READING
Study of electrical construction planning for industry and commerce and relevant electrical code. 64 Hrs. (4-0).

ELC 845
ADVANCED ELECTRICAL CONSTRUCTION
Practice in installation of rigid conduit and other electrical wireways; pulling in and wiring of motor controllers and other electrical equipment; study of blueprints of large electrical construction jobs. 144 Hrs. (1-8). *Prerequisite: ELC 833.*

ELC 846
ELECTRICAL MACHINERY, ANALYSIS AND REPAIR
Theory and laboratory instruction in use of complex metering methods used with industrial equipment, static and logic circuitry, equipment troubleshooting and repair using schematic diagrams, power transmission and distribution. 128 Hrs. (4-4). *Prerequisite: ELC 834.*

ELT 110
ELECTRICITY FOR THE TRADES
Theory and laboratory assignments involving electrical design and symbols as noted on building construction blueprints. Explanation of electrical diagrams, and National Electrical Code as governing agent setting rules for wiring requirements. Residential wiring, switching, lighting, receptacles, and service entrances in the laboratory.
3 Cr. (2-3), 80 Hrs.

ELT 111
DIRECT CURRENT FUNDAMENTALS
A study of the basic principles of electricity and the laws and formulas which are used to solve electrical problems. Principles of magnetism and their relationship to direct current generators and motors and other electrical machinery. Laboratory work to enable the student to hook up equipment and instruments. 5 Cr. (4-3).

ELT 112
BASIC WIRING LAB
Instruction in wiring basic electrical circuits, residential lighting and receptacle circuits. Low voltage switching and control circuits. Electrical underwriters rules. Proper use and care of hand tools.
3 Cr. (1-6).

ELT 113
ACCIDENT PREVENTION
Principles of accident prevention in industry and electrical safety procedures in all human activities; lifesaving techniques. 2 Cr. (2-0), 32 Hrs.

ELT 121
RESIDENTIAL BLUEPRINT READING/NATIONAL ELECTRICAL CODE
Planning and drawing residential wiring systems; calculating number and size of circuits needed for lighting, appliance, and heating; remote control systems; study of National Electrical Code requirements for residential, industrial, and commercial wiring. 4 Cr. (4-0).

ELT 122
ALTERNATING CURRENT FUNDAMENTALS
The fundamental principles of the behavior and flow of alternating current electricity. Includes problem solving, current, voltage, impedance, reactance and power factor in series and parallel circuits. Operating principles of AC motors, generators and control equipment.
5 Cr. (4-3). *Prerequisite: ELT 111.*

ELT 123
BASIC ELECTRICAL CONSTRUCTION LAB
Further study of the use of electrical equipment and materials, including all types of wiring devices and wiring systems. Planning and installing electrical systems, bending conduit, pulling in wires, connecting devices, lighting systems and distribution systems.
2 Cr. (1-3). *Prerequisite: ELT 112 or ELC 712.*

ELT 233
BASIC ELECTRONICS
Fundamentals of electronics including basic symbols, circuit configurations, electron tubes, solid state devices; rectifier, amplifier, and oscillator circuits as used in industrial work. Laboratory skills demonstrate practical application of industrial electronics through layout and assembling various circuits, along with solid state devices.
6 Cr. (4-6). *Prerequisite: ELT 122.*

ELT 234
ELECTRICAL MOTOR CONTROL
Motor control systems in industry, simple and complex, tracing circuits and troubleshooting a system from a schematic drawing. The principles of rotating and magnetic amplifiers, and static switching.
4 Cr. (3-3).

ELT 241
ELECTRICAL SYSTEMS ANALYSIS
Understanding electrical equipment and electrical testing apparatus to aid in locating and repairing malfunctions in equipment. Preventive maintenance and maintenance records. Use of voltmeters, ammeters, wattmeters, ohmmeters, megohmmeters, wheatstone bridge, tachometer, and all hand tools associated with the electrical trade.
2 Cr. (1-3). *Prerequisite: ELT 233.*

ELT 242
ELECTRICAL CONSTRUCTION BLUEPRINT READING
Blueprint reading and circuit planning for construction in factories and commercial buildings. Reference to the rules of the National Electrical Code and the Department of Labor and Industry. 4 Cr. (4-0).

ELT 244
ADVANCED ELECTRICAL THEORY
Solution of network problems and problems involving charge and discharge of capacitors, rotating vectors and other problems involving alternating electricity. 3 Cr. (3-0). *Prerequisite: ELT 122.*

ELECTRONICS (ENT)

ENT 111
ELECTRONICS—THEORY I
Electricity and electronics theory including structure of matter, basic atomic theory, DC and AC, Ohm's Law, Kirchoff's Law; electrical calculations and formulas; magnetism and electromagnetism, vector analysis; resonance; electrical filters; measuring instruments.
5 Cr. (5-0).

ENT 112
ELECTRONICS—APPLICATION I
Application of electronic concepts of component testing and identification, wiring electrical and electronic circuits; demonstration and laboratory work coupled with extensive use of electronic tools and equipment. 3 Cr. (0-9). *Prerequisite or Corequisite: ENT 111.*

ENT 113
ELECTRICAL CIRCUIT ANALYSIS
First of three or four semester sequential courses in analysis, tracing, and problem solving including close analysis of AC and DC circuits. Special emphasis on circuit tracing and solution of electrical problems using mathematical approaches. 3 Cr. (3-0).
Prerequisite or Corequisite: ENT 111.

ENT 122
ELECTRONICS – THEORY II
Continuation of ENT 111, basic theory covering vacuum tubes and solid state devices as well as circuits using these devices; advanced electrical and electronic measuring instruments. 5 Cr. (5-0).
Prerequisites: ENT 111, MTH 103.

ENT 123
ELECTRONICS – APPLICATIONS II
Continuation of ENT 112; construction and testing of vacuum tube and solid state systems such as amplifiers, detectors; theory and operation of laboratory testing equipment including gain, distortion, frequency response and power output measurements. 3 Cr. (0-9). *Prerequisites or Corequisites: ENT 112, ENT 122.*

ENT 124
BASIC ELECTRONICS CIRCUIT ANALYSIS
Continuation of ENT 113; complete analysis of electronic circuits featuring design and component selections as well as more advanced circuit checking and testing. 3 Cr. (3-0).
Prerequisites or Corequisites: ENT 113, ENT 122.

ENT 129
POWER TRANSMISSION FUNDAMENTALS
Basic theory of three-phase systems; generation, transmission, and load calculations; three-phase power calculations and loss, power factor and power factor correction; machine fundamentals and control. 3 Cr. (3-0).

ENT 233
ELECTRONICS – THEORY III
Continuation of ENT 122; detailed study of solid state and vacuum tube circuits and devices; includes microwaves, wave propagation, transmission lines, gating and logic circuits. 5 Cr. (5-0).
Prerequisites: ENT 122, MTH 104.

ENT 234
ELECTRONICS – APPLICATIONS III
Continuation of ENT 123; construction and analysis of more sophisticated solid state and vacuum tube equipment; use of more advanced types of lab instruments; laboratory report writing. 3 Cr. (0-9). *Prerequisites or Corequisites: ENT 123, ENT 233.*

ENT 235
INTERMEDIATE ELECTRONICS CIRCUIT ANALYSIS
Continuation of ENT 124; closer analysis of more complicated circuitry including pulse techniques and pulse generators; blocking oscillators; multivibrators and shaping networks; integrating and differentiating networks. 3 Cr. (3-0). *Prerequisites or Corequisites: ENT 124, ENT 233.*

ENT 241
CALIBRATION AND STANDARDIZATION
Principles of electronic instrument calibration and standardizing techniques. The position and purpose of the National Bureau of Standards. Instruments used in the school Standards Laboratory. 3 Cr. (2-3). *Prerequisite: ENT 233.*

ENT 242
ADVANCED CIRCUIT ANALYSIS
Close analysis of wave and pulses as found in color television; alignment of electronic circuits, including color television. 3 Cr. (3-0).
Prerequisite or Corequisite: ENT 244.

ENT 244
ELECTRONICS – THEORY IV
Systems and waveform analysis; includes cathode-ray display devices, laboratory type instruments; T.V. and servo systems; computer principles. 5 Cr. (5-0). *Prerequisite: ENT 233.*

ENT 245
ELECTRONICS – APPLICATIONS IV
Practical applications of advanced types of precision electronic instruments, including waveform measurements, signal and circuit tracing, dynamic measurements of systems performance. 3 Cr. (0-9).
Prerequisites or Corequisites: ENT 234, ENT 244.

ENGINEER IN TRAINING PROGRAM (EIT)

EIT 201
STATICS
The course includes the study of basic principles of statics: various force systems, static equilibrium of the force systems, friction and miscellaneous static related problems. The practical applications of these principles – analysis of roof and bridge trusses, beam under various loading conditions; belt friction and rolling resistance, flexible cables, etc. are also covered. 3 Cr. (3-0).

EIT 202
STRENGTH OF MATERIALS I
The course outlines properties of engineering materials, behavior of materials under loads, stress and deformations, riveted and welded joints, torsion, centroids, moment of inertia, areas of shear and moments in beams, stresses in beams and design of beams. Students will learn to analyze and design simple beams, riveted and welded connections, shafts subjected to torsion, etc. 3 Cr. (3-0).

EIT 203
DYNAMICS
The course covers basic principles of dynamics, i.e., kinematics of rectilinear motion, curvilinear motion, kinetics of motion, plane motion, and their effects on moving or static bodies. The application of these principles includes use of work, energy and power and impulse, momentum and impact concepts to solve various motion problems. 3 Cr. (3-0).

EIT 204
FLUID MECHANICS
The course presents the basic principles of fluid mechanics and their applications in practical fluid mechanics problems. It includes study of properties of fluids, fluid pressure at rest, buoyancy effect, steady flow of liquids in closed conduits, as well as in open channels, losses in both cases, flow measuring devices, variable flow, forces produced by fluids in motion and dimensional analysis and similitudes. All equations of the fluid flow are derived from the basic Bernoulli equation. 3 Cr. (3-0).

EIT 205
STRENGTH OF MATERIALS II
Continuation of Strength of Materials I. Covers complex problems such as deflection of beams by moment-area method, analysis of statically indeterminate beams by three moment equation and moment distribution methods, combined bending and axial stresses, analysis and design of timber, steel and aluminum columns and special topics of strain energy and impact loadings. 3 Cr. (3-0).

EIT 206
ENGINEERING ECONOMICS
Study of economics as it relates to engineering. 3 Cr. (3-0).

EIT 207
ENGINEERING CHEMISTRY
An intensive course of chemical calculations based on chemical reactions and physical properties of substances. Includes theoretical topics as needed for a basis of calculations. 3 Cr. (3-0).

EIT 208
THERMODYNAMICS
The study of energy transfer in relation to the changes in physical properties of substances. 3 Cr. (3-0).

EIT 209
ENGINEERING PHYSICS
A study of physics as it relates to engineering. 3 Cr. (3-0).

EIT 210
ENGINEERING ELECTRONICS
This course is designed to apply fundamental principles of electrical circuit analysis to EIT problems. Concepts of study include Ohm's law, series circuits, parallel circuits, series-parallel circuits, network theorems, magnetism, electro-magnetic induction, alternating current and voltage inductance, inductive reactance, capacitance, capacitive reactance, capacitive circuits, alternating current circuits, complex numbers and resonance. 3 Cr. (3-0). *Prerequisites: algebra, trigonometry and basic calculus.*

ENGLISH (ENL)

ENL 011
BASIC ENGLISH
This course emphasizes writing skills: organization, structure, content, style, and mechanics. Individualized instruction, instructor control of the writing process, limited class size, and personalization of grammar instruction are characteristic of the course. 3 Institutional Cr. (3-0)

ENL 111
ENGLISH COMPOSITION I
Basic composition involving language structure, rhetorical principles, orderly, clear writing, and readings in expository prose. 3 Cr. (3-0).

ENL 121
ENGLISH COMPOSITION II
Continues the writing principles of ENL 111 and includes the study of other modes of expression. 3 Cr. (3-0). *Prerequisite: ENL 111.*

ENL 201
TECHNICAL WRITING
Intensive survey of technical writing with practice in preparing reports for business and industry. 3 Cr. (3-0), 48 Hrs.

ENL 202
FUNDAMENTALS OF SPEECH
Includes public speaking, its methods and evaluation, and the development of persuasive speech; involves the study of modern rhetorical theory in such areas as interpersonal and group dynamics; mass persuasion, and non-verbal behavior. 3 Cr. (3-0).

ENL 231
WORLD LITERATURE
The reading of literature expressing the western belief in the paramount importance of the individual. Includes a survey of representative works of continental Europe to the present. 3 Cr. (3-0). *Prerequisite: ENL 121.*

ENL 235
CREATIVE WRITING
Development of skills in writing imaginative prose and in presenting short stories for class criticism and review. 3 Cr. (3-0).

ENL 290
SPECIAL STUDIES IN ENGLISH
Individual guidance in advanced studies. Admission by permission of the instructor. 1-3 Cr. (1 to 3-0).

ENL 711
COMMUNICATIONS
Foundation in oral skills; propaganda, material fallacies, and small group dynamics. Development of writing competencies related to vocational objectives. 48 Hrs. (3-0).

ENVIRONMENTAL SCIENCE (ESC)

ESC 100
ENVIRONMENTAL SCIENCE
Designed especially for the non-science student who wants to develop an ability to understand environmental systems and problems from a scientific viewpoint. Covers many aspects of land, water, and air pollution and its relation to living organisms, especially people.
3 Cr. (3-0), 48 Hrs.

F

FOOD AND HOSPITALITY (FHD)

FHD 111
INTRODUCTORY FOODS
Introduction to food service industries. Basic principles of food preparation are investigated. Protein, carbohydrate, and fat cookery. 3 Cr. (2-3).

FHD 112
NUTRITION
Sources and functions of nutrients and how they relate to bodily functioning. Dietary essentials of an optimum diet. Includes nutritive requirements for each age stage of the life cycle. 3 Cr. (3-0).

FHD 113
HEALTH FIELD EXPERIENCE I
An introduction to the hospital care profession with emphasis on dietary department. 1 Cr. (0-2).

FHD 115
PURCHASING, STORAGE, AND SANITATION
Managerial training in all facets of purchasing. Proper procedures for good storage and sanitation. Training of staff in proper procedures to assure production of safe food. 3 Cr. (3-0).

FHD 121
QUANTITY FOOD PREPARATION
Cooking foods in quantity. The reasons for preparing certain foods in certain ways and which commercial equipment will produce the best product. 3 Cr. (2-3).

FHD 122
DIET THERAPY
In-depth study of the principles of therapeutic diets. Includes medical terminology, tours of community health services, and familiarity with diet manuals. Students learn interviewing and counseling techniques and sources of professional updating information. 3 Cr. (3-0).

FHD 123
HEALTH FIELD EXPERIENCE II
Students work in the department related to the subjects they are studying. Six hour lab times are rotated between quantity food production, menu and cost control and diet therapy with a one hour a week seminar with dietitian supervisor to discuss unanswered questions and learning experiences. 3 Cr. (1-6).

FHD 125
MENU PLANNING AND COST CONTROL
Nutritional meals for various age, economic, cultural, and religious groups; menus for commercial, industrial, school, institutional food services; food preferences of customers; merchandising techniques; cost controlling. 3 Cr. (3-0).

FHD 126
FRONT OFFICE MANAGEMENT & HOUSEKEEPING
Introduction to hotel and motel management; managing a front office, including promotion, guest registration, and cost control; science and art of housekeeping and personnel management. 3 Cr. (2-3).

FHD 230
HOSPITALITY MANAGEMENT & THEORY
Supervised practical experience in various areas of food and hospitality management and production. Lecture and discussion of work schedules, employer-employee relations, food purchasing and preparation, supervision and training of personnel, menu planning and other subjects related to the student's choice of practicum. 3 Cr. (1-6).

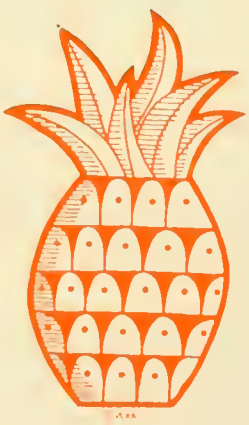
FHD 233
HEALTH FIELD EXPERIENCE III
Students will do patient dietary histories and diet training. One patient about to be discharged will be selected for a student to assist with adjustments in dietary prescription at home. Students will become familiar with ADA organizations and their functions. 3 Cr. (1-6).

FHD 234
HEALTH CARE DELIVERY SYSTEMS
This course is an in-depth study of the health care programs available to the public. Students study the development of present problems and future predictions of health care institutions and the medical profession. Also included are factors that consumers of health care services should be knowledgeable about to avoid fads and quacks. 3 Cr. (3-0).

FHD 235
SUPERVISION, WORK SIMPLIFICATION & INCENTIVES
Analysis of concepts of supervision and interpersonal relationships, motivations, manual motions, work place layouts, production job analysis and evaluation, establishing work loads. 3 Cr. (3-0).

FHD 241
BEVERAGE MANAGEMENT & CATERING
Techniques used in restaurant management related to beverages, and in bar management; consideration of quality in beverage service. Management of the catered meal. Preparation and presentation of classic and international cuisines. 3 Cr. (2-3).

FHD 243
HEALTH FIELD EXPERIENCE IV (Dietary Management in Various Nutritional Programs)
Students work in a nursing home, school, Meals on Wheels, and hospital to study the feeding program's financial organization, the management organization, and employee organization. 3 Cr. (1-6).



FHD 245
EQUIPMENT AND LAYOUTS
Familiarizes students with all the latest pieces of equipment and ways to lay out facilities for best production, service, safety and sanitation. 3 Cr. (3-0). *Prerequisites: FHD 111, FHD 121.*

FHD 246
HOSPITALITY MERCHANDISING
Techniques of sales, merchandising and promotion as applied to food and lodging establishments. 3 Cr. (3-0).

FHD 253
FOOD & HOSPITALITY WORK EXPERIENCE PRACTICUM
Prior to the beginning of the fourth semester the student must complete 120 hours of employment in the food and hospitality industry. Evaluation by the employer, a written report by the student, and discussion of the experience with an instructor are required upon completion of the work experience. No credit.

FOREST TECHNOLOGY (FOR)

FOR 111
DENDROLOGY
Classification, identification, and distribution of woody plants in the United States, with special emphasis on species of local commercial importance. 3 Cr. (2-3).

FOR 113
FOREST MENSURATION
Measurement of standing trees, of logs and other cut wood products; the determination of the contents of these products in terms of board feet, cubic feet, cords, and pounds. The measurement of growth in trees and forests. 3 Cr. (2-3).

FOR 115
FOREST BOTANY
The study of plant physiology and anatomy with special reference to trees. The stem structure of trees and the identification of commercial tree species based on microscopic characteristics of wood. 3 Cr. (2-3).

FOR 121
PHOTOGRAMMETRY AND FOREST SURVEYING I
Introductory study of the basic techniques of photogrammetry, photo-interpretation; introduction to surveying, including the fundamentals of plane surveying and the use and care of equipment. 3 Cr. (1-6).

FOR 124
ADVANCED FOREST MENSURATION
Quality determination of logs and trees. Estimating volumes of large timber areas by different sampling techniques. The use and interpretation of aerial photos in forest surveys. 3 Cr. (2-3).

FOR 126
FOREST ECOLOGY AND WILDLIFE MANAGEMENT
Introduction to ecology, upon which the management of forest and wildlife resources may be based. Increases the student's understanding of the ecological relationship of forest and wildlife communities. 3 Cr. (2-3).

FOR 232
FOREST SURVEYING II
Theory and practice of plane surveying techniques for application in property and boundary surveys, map making, construction surveys, and computations. Special emphasis on forestry applications of these principles. 3 Cr. (2-3). *Prerequisite: FOR 121.*

FOR 233
EQUIPMENT AND MACHINERY
The operation, care and maintenance of logging machinery, forest fire control equipment and related mechanical devices in common use in forest operations. 3 Cr. (2-3).

FOR 234
TIMBER HARVESTING
The felling, skidding, and transportation of timber products from the woods to the point of manufacture. Application of modern logging methods and techniques, including the breakdown of entire tree stems into lengths and units of highest economic value. 3 Cr. (2-3).

FOR 236
SILVICULTURE
The study of forestry practices and systems used in the establishment and management of trees for the sustained production of timber products. 3 Cr. (2-3).

FOR 242
FOREST PRODUCTS
The conversion of round timber products into a semi-finished state, and the manufacture of these raw materials into finished consumer products. Includes the seasoning of lumber and the preservative treatments of wood to improve its usefulness. 3 Cr. (2-3).

FOR 247
FOREST LAND MANAGEMENT AND RECREATION
Basic concepts of multiple use management of publicly and privately owned forest lands. Shows the importance of managing the land for recreation, wildlife, and water. 3 Cr. (2-3).

FOR 248
FOREST PROTECTION
The causes, effects, and methods of control of forest fires. The identification, effects and control of other harmful agents, principally insects and diseases. 3 Cr. (3-0).

G

GEOGRAPHY (GEO)

GEO 101
PHYSICAL GEOGRAPHY
Introduction to topographic maps, landforms, weather elements, climates, soils, and vegetation. 3 Cr. (3-0).

GEOLOGY (GEL)

GEL 105
PHYSICAL GEOLOGY
Basic concepts in the study of the Earth; relationships between Earth materials and the geologic agents and processes that create and modify minerals, rocks, landforms, continents, and the ocean basins. 4 Cr. (3-3).

GEL 106
HISTORICAL GEOLOGY
Origin of the Earth, evolution of its crust, and the development and evolution of life thereon; relationships among rock units as evidence for geologic history; fossils as documents of evolution, chronology and environment; relative and absolute age dating of the Earth. 4 Cr. (3-3). *Prerequisite: GEL 105.*

GEL 290
SPECIAL STUDIES IN GEOLOGY
Special attention to particular abilities and interests of students. Individual guidance in advanced studies. Admission by permission of the instructor. (1-3, laboratory as required).

GERMAN (GER)

GER 111
BEGINNING GERMAN I
Basic grammar and language structure. Comprehension, speaking and reading, with particular regard to pronunciation and accent. 3 Cr. (3-0). *Prerequisite: Permission of the instructor.*

GER 121
BEGINNING GERMAN II
Continuation of GER 111. 3 Cr. (3-0). *Prerequisite: GER 111.*

GOVERNMENT (GOV)

GOV 231
AMERICAN GOVERNMENT—NATIONAL
Federal government, its powers and organization. Functions of legislative, executive and judicial branches. Our federal system as it has developed. 3 Cr. (3-0).

GOV 241
STATE AND LOCAL GOVERNMENT
State and local governmental institutions, their functions and responsibilities; intergovernmental relations. 3 Cr. (3-0).

GOV 290
SPECIAL STUDIES IN GOVERNMENT
Special attention to particular abilities and interests of students. Individual guidance in advanced studies. Admission by permission of the instructor. 1-3 Cr. (1 to 3-0).

GRAPHIC ARTS (GCO)

GCO 511
LAYOUT AND DESIGN
Analysis of materials, tools and techniques used in preparation of copy for reproduction; paste-up and color separation overlays. 128 Hrs. 4 Cr. (2-6).

GCO 512
TYPOGRAPHIC COMPOSITION
Fundamentals of typesetting. Theory and practice in the care and use of composing machines, both hot and cold (mechanical) and cold (photo). 128 Hrs. 4 Cr. (2-6).

GCO 515
LAYOUT AND DESIGN
Offered to students who are enrolled in curricula other than Graphic Arts. Analysis of materials, tools and techniques used in preparation of copy for reproduction; paste-up and color separation overlays. 80 Hrs. 3 Cr. (2-3).

GCO 516
TYPOGRAPHIC COMPOSITION
Offered to students who are enrolled in curricula other than Graphic Arts. Fundamentals of typesetting. Theory and practice in the care and use of composing machines, both hot and cold (mechanical) and cold (photo). 80 Hrs. 3 Cr. (2-3).

GCO 521
PROCESS CAMERA
Concepts and techniques of darkroom procedure for reproduction of line and halftone copy on process cameras. 128 Hrs. 4 Cr. (2-6).

GCO 522
FILM ASSEMBLY AND IMPOSITION
A study and application of various methods of assembling negatives and positives in the form of flats in preparation for making offset plates. 128 Hrs. 4 Cr. (2-6).

GCO 525
PROCESS CAMERA
Offered to students who are enrolled in curricula other than Graphic Arts. Concepts and techniques of darkroom procedure for reproduction of line and halftone copy on process cameras. 80 Hrs. 3 Cr. (2-3).

GCO 526
FILM ASSEMBLY AND IMPOSITION
Offered to students who are enrolled in curricula other than Graphic Arts. A study and application of various methods of assembling negatives and positives in the form of flats in preparation for making offset plates. 80 Hrs. 3 Cr. (2-3).

GCO 631
PLATEMAKING, SUBSTRATES AND FINISHING
Identification, selection, and relationship of paper and board stocks, non-printing conversions for the printing, publishing, and allied industries. Theory and application relating to various types of offset plates and processing procedures. 128 Hrs. 4 Cr. (2-6).

GCO 632
PRESS OPERATIONS
Correlation of printing press operation; ink mixing and matching, registration preventive maintenance for quality analysis. 128 Hrs. 4 Cr. (2-6).

GCO 635
PRINTING ESTIMATING PRACTICES
Theory and practice in estimating jobs, writing specifications and planning jobs for production. 48 Hrs. 3 Cr. (3-0).

GCO 641
ADVANCED TYPOGRAPHIC COMPOSITION
Advanced study and application of GCO 511 and GCO 512. Special emphasis placed on photo composition as it relates to the composition industry. Students will be involved with individual projects and/or live work. 112 Hrs. 3 Cr. (1-6). *Prerequisites: GCO 511, GCO 512.*

GCO 642
ADVANCED PROCESS CAMERA AND STRIPPING
Advanced study in black and white tone reproduction, special effects and basic color procedures. Advanced work in color stripping and photo-art techniques. 112 Hrs. 3 Cr. (1-6). *Prerequisites: GCO 521, GCO 522.*

GCO 645
PRINTING PROCESSES
Theory and application of the four major printing processes: letterpress, lithography, gravure, and silk screen. 112 Hrs. 3 Cr. (1-6).

H

HISTORY (HIS)

HIS 111
WESTERN CIVILIZATION I
Survey and analysis of major intellectual, social, political, and economic developments of western civilization from ancient times until the 18th Century. 3 Cr. (3-0).

HIS 121
WESTERN CIVILIZATION II
Survey and analysis of major intellectual, social, political, and economic developments of western civilization from the 18th Century until the present. 3 Cr. (3-0).

HIS 231
UNITED STATES—SURVEY I
Political, economic, and social development of the United States from colonial times to and including the Civil War and the Reconstruction Period. 3 Cr. (3-0).

HIS 241
UNITED STATES—SURVEY II
Political, economic, and social development of the United States from 1877 to and including the current Civil Rights Movement. 3 Cr. (3-0).

HIS 290
SPECIAL STUDIES IN HISTORY
Individual guidance in advanced studies. Admission by permission of the instructor. 1-3 Cr. (1 to 3-0).

J

JOURNALISM (JOU)

JOU 111
NEWS WRITING
Techniques of basic news writing for press systems with emphasis on organizing the story. Students write and rewrite; instructor edits. Detailed critiques and class discussion of student writing. 3 Cr. (3-0).

JOU 112
PHOTOGRAPHY FOR NEWSPAPERS
Introduction to photography; how to use an adjustable camera. Course presumes no previous experience in photography and covers the basic skills needed to take effective news photos in black and white. 2 Cr. (1-3).

JOU 121
NEWS REPORTING
Techniques of covering a news beat. Emphasis on public affairs reporting. 3 Cr. (3-0). *Prerequisites: JOU 111 and ability to type.*

JOU 122
IN-SERVICE TRAINING I
On-the-job training with student publications and with a local newspaper. 2 Cr. (0-6).

JOU 231
FEATURE WRITING
Guidance on format and structure of news features, brites, color stories, and side bars. Techniques of interviewing and researching feature stories. Instruction in gathering material and identifying good ideas. 3 Cr. (3-0). *Prerequisites: JOU 111 and ability to type.*

JOU 232
EDITING
Techniques of editing material for publications, printing processes, copyreading, headline writing, typography, picture editing, layout, legal and ethical considerations. 3 Cr. (3-0). *Prerequisites: JOU 111 and ability to type.*

JOU 233
IN-SERVICE TRAINING II
On-the-job training on the staff of student publications. Students must have demonstrated the ability to handle writing assignments with minimum supervision. 2 Cr. (0-6).

JOU 241
NEWSPAPER MANAGEMENT AND COMMUNITY RESPONSIBILITY
Managing and publishing newspapers in the United States; problems of law, finance, personnel, promotion, technological change, and community service. 3 Cr. (3-0).

JOU 242
IN-SERVICE TRAINING III
Editorial responsibilities on student publications requiring initiative and proficiency. 2 Cr. (0-6).

M

MACHINE TOOL TECHNOLOGY & MACHINIST GENERAL (MTT)

MTT 511
MACHINING I (8 weeks)
Use of hand tools to produce layouts and objects by hand, simple filing, sawing, assembling, use of drill presses, drill sharpening; drilling to a layout, drill jigs. Producing parallel and square surfaces, shaping rectangular objects. 160 Hrs. 5 Cr. (5-15).

MTT 512
MACHINING II (8 weeks)
The theory of grinding tool bits: turning, facing, boring and thread cutting on the lathe. Practice in end milling, slab and plain milling. Practice in power tapping machines. 160 Hrs. 5 Cr. (5-15).

MTT 521
AUTOMATIC MACHINES (8 weeks)
Fundamental concepts of metal removal employing multi-tooling machining processes. Use and care of carbide tooling to obtain maximum effort. Instruction will center on turret lathes, automatic screw machines, automatic power tapping machines. 160 Hrs. 5 Cr. (5-15).

MTT 522
INDUSTRIAL METROLOGY (8 weeks)
The use of precision instruments such as verniers, various types of comparators, Rockwell hardness testing, toolmakers scope, flatness checking, surface plate work including the use of the sine bar, advanced blueprint reading, introduction to metric measurements, and controlling quality of work by sampling method. 160 Hrs. 5 Cr. (5-15).

MTT 631
TOOLING TECHNOLOGY I (8 weeks)
Theory and practice in machining, cutting and assembly of precision die parts, layout and boring to close tolerance in jigs and fixtures. Knowledge and practice in machining different types of threads and their application. 160 Hrs. 5 Cr. (5-15).

MTT 632
TOOLING TECHNOLOGY II (8 weeks)
Understanding and practice in operation of numerically controlled machining center types of machines and coding methods involved, machining of gears, terminology of gears, power transmission and indexing methods, simple, differential and helical milling. 160 Hrs. 5 Cr. (5-15).

MTT 641
ABRASIVE MACHINING (8 weeks)
Theory and practice in surface, cylindrical, internal, and jig grinding, grinding of threads, taps, electrical chemical grinding, and electrical discharge machining are included. 160 Hrs. 5 Cr. (5-15).

MTT 642
HEAT TREATMENT AND CUTTER GRINDING (8 weeks)
Theory and practice in hardening and tempering of various kinds of metal, carburizing, case hardening, annealing, normalizing, and forging of steel. Grinding of all types of tools and cutters is included. 160 Hrs. 5 Cr. (5-15).

MARKETING/MERCHANDISING (MKT)

MKT 234
RETAIL MERCHANDISING I
This course is designed to familiarize students with the field of retailing. It will provide the technical and theoretical knowledge necessary for retail management employment. 3 Cr. (3-0).

MKT 240
MARKETING
This course illustrates various methods of merchandising and the channel of distribution from producer or manufacturer to the ultimate consumer. Government regulations, pricing, cost and branding, influence of buyers and consumers on marketing programs and current marketing trends are presented. 3 Cr. (3-0).

MKT 243
SALES
Sales examines the positive role personal selling plays in the American economy and documents the extent to which selling has aided in our economic growth. This course is designed to show the sales role in helping customers recognize and satisfy wants and needs, and how this satisfaction can lead to a higher standard of living. 3 Cr. (3-0).

MKT 244
RETAIL MERCHANDISING II
This course continues concepts to help build an understanding and appreciation of activities needed to make a retail business succeed. Retailing is studied from the viewpoint of a middle manager in a large retailing firm as well as a manager of one's own business. 3 Cr. (3-0).

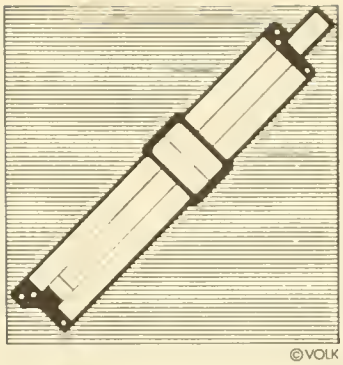
MKT 246
FASHION MERCHANDISING
This course is designed to familiarize students with the field of fashion merchandising. It will provide the technical and theoretical knowledge necessary for fashion management. 3 Cr. (3-0).

MATHEMATICS (MTH)

MTH 001
ARITHMETIC
Comprehension of the basic concepts and skills of arithmetic to prepare students for required mathematics courses. Pre and post-tests are used to prescribe and insure mastery of units covered.
3 Institutional Cr. (3-0).

MTH 002
BASIC ALGEBRA
Basic skills and concepts of arithmetic and algebra are presented according to the learner's aptitudes and needs. Pre and post-tests are used to prescribe and insure mastery of units covered. The course may require more than one semester for mastery of the objectives.
3 Institutional Cr. (3-0).

MTH 100
TECHNICAL MATHEMATICS II
Topics from algebra, geometry, right triangle trigonometry, and others. Special emphasis on applications to practical problems in the student's area of concentration. 3 Cr. (3-0). Cannot be used to satisfy math requirements for students in the General Studies Associate Degree program. *Prerequisite: MTH 710 or permission of instructor.*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MTH 101
INTRODUCTION TO MATHEMATICS I
Explorations with number and geometric patterns, problem solving, mathematical recreations, flow charts, sets, logic, systems of numeration, an introduction to algebra, and other selected topics. Intended as a general education course for non-mathematics or science majors. 3 Cr. (3-0). *Prerequisite: One year of high school mathematics.*

MTH 102
INTRODUCTION TO MATHEMATICS II
Mathematical systems, properties of integers, rational, real and complex numbers, selected topics from geometry, probability, and statistics. Intended as a general education course for non-mathematics or science majors. 3 Cr. (3-0). *Prerequisite: MTH 101.*

MTH 103
COLLEGE ALGEBRA
Properties of real numbers, basic algebraic operations, relations and functions, equations and inequalities, basic right triangle trigonometry, sine and cosine laws. Designed for general studies and technology students desiring a thorough precalculus algebra background.
3 Cr. (3-0). *Prerequisite: Two years of high school algebra, MTH 003 or MTH 002, or placement by examination.*

MTH 104
COLLEGE TRIGONOMETRY
Continuation of MTH 103. Circular, trigonometric, inverse, exponential and logarithmic functions, complex numbers, matrices, determinants, systems of equations, and other selected topics. 3 Cr. (3-0).
Prerequisite: MTH 103 or placement by examination.

MTH 105
INTERMEDIATE ALGEBRA
Properties of real numbers, polynomials, fractions, exponents, roots, and radicals, first and second degree equations and inequalities in one variable, functions, graphs, and other selected topics. Intended for students without a strong working knowledge of algebra. 3 Cr. (3-0). Cannot be used to satisfy general studies requirement. Cannot be used as elective credit in programs requiring MTH 103. *Prerequisite: One year of high school algebra or placement by mathematics exam.*

MTH 107
APPLIED CALCULUS
Relations and functions (conics), limits, derivatives and integration of algebraic functions, trigonometric functions and transcendental functions, methods of integration and applied problem solving. Is excellent preparation for students who intend to sit for the Engineer in Training Examination. 3 Cr. (3-0). *Prerequisite: College algebra and trigonometry or permission of instructor.*

MTH 201
ELEMENTARY STATISTICS I
An introduction to frequently applied statistical methods; descriptive statistics, frequency distributions, elementary probability, binomial and normal distributions, Central Limit Theorem, statistical inference and tests of hypotheses, Chi-square and t-tests. Intended for general studies and technology students desiring a basic working knowledge of statistics. 3 Cr. (3-0). *Prerequisite: One year of high school algebra.*

MTH 202
ELEMENTARY STATISTICS II
Continuation of MTH 201, with emphasis on applied statistical techniques and design of experiment; Student T, Chi-square, F-tests, linear regression, correlation, and models; analysis on enumerative data; analysis of variance; non-parametric statistics. To be offered regularly in the Spring Term of even numbered years. 3 Cr. (3-0). *Prerequisite: MTH 201.*

MTH 204
MATRIX ALGEBRA
Matrices, determinants, inverse of a matrix, rank and equivalence, linear equations and linear dependence, vector spaces, linear transformations, characteristic equations of a matrix, bilinear, quadratic, and Hermintian forms. Recommended for computer science, science, and technology students. May be used as a core requirement or general elective for general studies students. To be offered regularly in the Spring Term of odd numbered years. 3 Cr. (3-0). *Prerequisite: Two years of high school algebra, MTH 103, or permission of instructor.*

MTH 238
CALCULUS I—INTRODUCTION TO DIFFERENTIAL AND INTEGRAL CALCULUS
Derivatives, continuity, slopes, velocity, rates of change, curve sketching, chain rule, related rates, maximum-minimum theorems, differentials, integration, and some applications of integrations. 4 Cr. (4-0). *Prerequisite: MTH 104 or permission of instructor.*

MTH 248
CALCULUS II
Continuation of MTH 238 with emphasis on techniques of integration, limits, sequences and series, vectors, differentiation – partial derivatives, multi-variable differentiation, directional derivatives, and other selected topics. 4 Cr. (4-0). *Prerequisite: MTH 238.*

MTH 290
SPECIAL TOPICS IN MATHEMATICS
Special arrangements of individuals or groups to study topics of interest, i.e., Differential Calculus, Modern Algebra, Modern Geometry. Arrangement to be made through instructor and Division Director. One to four credits per course.

MTH 710
TECHNICAL MATHEMATICS I
Arithmetic operations with whole numbers, common and decimal fractions, per cent, basic principles of measurement, and other selected topics. Intended for certificate students. 48 Hrs. (3-0). Placement by mathematics examination.

MTH 715
GENERAL AVIATION MATHEMATICS
Fundamental operations with common and decimal fractions, mixed numbers, square root algorithm, area, volume, ratio, signed numbers, and other selected topics. Intended for aviation maintenance technicians (AC). 48 Hrs. (3-0).

MEDICAL TERMINOLOGY (MTR)

MTR 101
MEDICAL TERMINOLOGY I
Introduction to medical terminology with emphasis on etiology, symptomatology, pathology, and diagnostic procedures. 3 Cr. (3-0).

MTR 102
MEDICAL TERMINOLOGY II
Continuation of MTR 101. Course is designed to develop the ability to read and understand the language of medicine. Emphasis on the meaning of root words and their combining forms. 3 Cr. (3-0). *Prerequisite: MTR 101.*

O

OPERATING ROOM TECHNICIAN (ORT)

ORT 710
BODY STRUCTURE AND FUNCTION
Introduction to the structure and function of the human body: general plan, cell tissues and tumors, membranes, musculo-skeletal, nervous, circulatory, digestive, respiratory, reproductive, and endocrine systems. 80 Hrs. (5-0).

ORT 711
OPERATING ROOM TECHNIQUES I
General introduction to hospitals and operating rooms. Job descriptions and qualifications. Professional, legal, moral, and religious responsibilities. Concepts of anesthesiology, asepsis, and safety. Related housekeeping skills. Personal health and hygiene. Techniques and skills of the operating room technician. Selected learning experiences in the operating room. 320 Hrs. (10-10).

ORT 720
OPERATING ROOM TECHNIQUES II
The study of the condition of illnesses, operations, positioning, equipment, materials, and anesthesia used in the various surgical specialties with selected experience in the operating room.
64 Hrs. (4-0).

ORT 721
SUPERVISED CLINICAL EXPERIENCE
Practical clinical experiences enabling the student to function at a beginning level as assistant circulator and scrub-in technician.
416 Hrs. (0-26).

ORNAMENTAL HORTICULTURE (FLR, NMG, OHT)

FLR 121
GREENHOUSE CROP PRODUCTION I
An introduction to greenhouse crop production with emphasis on environmental control, plant culture, facilities, and equipment. Includes demonstration of techniques. 3 Cr. (2-3).

FLR 122
FLORAL DESIGN I
Instruction and application of principles in the art of floral design, including form, styles, and composition. Includes designing floral arrangements, wreaths, sprays, baskets, bouquets, wedding flowers, and corsages. 3 Cr. (1-6).

FLR 232
GREENHOUSE CROP PRODUCTION II
Production of cut flowers and potted plants with emphasis on techniques used for important commercial crops. Each crop will be grown by students using school facilities. 3 Cr. (2-3).

FLR 233
FLORAL DESIGN II
A continuation of FLR 122 with the addition of designing dried and permanent arrangements. Stresses shop layout and familiarity with routine procedures in the operation of a flower shop. 3 Cr. (2-3).
Prerequisite: FLR 122.

FLR 243
GREENHOUSE CROP PRODUCTION III
Production of potted plants, bedding plants, and other crops using commercial techniques. Includes production, planning, crop rotation, and the role of management. 3 Cr. (2-3).

FLR 244
FLOWER SHOP OPERATION
Emphasizes buying, pricing, sales, inventory, personnel, record keeping, and general principles related to the commercial retail flower shop. Lab practice in perfecting design techniques and originality.
3 Cr. (2-3).

FLR 245
HOUSE AND CONSERVATORY PLANTS
Identification, culture, propagation and use of house and conservatory foliage plants. Course includes artificial lighting, indoor landscaping for home, malls and business, soils and fertilizers for commercial growing, insects, diseases, and cultural problems associated with foliage plants.
3 Cr. (2-3).

NMG 121
NURSERY PRODUCTION I
Classified nurseries and careers; covers aspects of garden center location, layout and design and merchandising techniques. Includes nursery structures and facilities, nursery equipment, plant growth, growth habits and pruning, nursery practices of ball and burlapping and transplanting. 3 Cr. (2-3).

NMG 126
WOODY PLANTS II
Continuation of OHT 115. Additional plants are studied with major emphasis on the study of deciduous trees, shrubs, vines, ground covers, and their varieties and cultivars. 3 Cr. (2-3).
Prerequisite: OHT 115.

NMG 232
NURSERY PRODUCTION II
Nursery aspects of plant propagation, with emphasis on field and container production techniques, production schedules, nursery soil management, weed control, and cost analysis.
3 Cr. (2-3).

NMG 237
WOODY PLANTS III
Advanced study of plant identification. Emphasis on the study of broad leaved and narrow leaved evergreens – their varieties and cultivars.
3 Cr. (2-3). *Prerequisites: NMG 126, OHT 115.*

NMG 245
LANDSCAPE CONSTRUCTION
Techniques used in the construction of landscape features such as patios, walks, retaining walls, fences, fountains, waterfalls, pools and steps using various construction materials. Includes establishment and maintenance of lawns and plantings. Specifications, bidding and pricing of landscape jobs are also covered. 3 Cr. (1-6).

NMG 248
LANDSCAPE MAINTENANCE
Covers aspects of turf management and tree care (arboriculture). Establishment and maintenance of different types of turf areas. Emphasis on golf course, institutional, park, and home turf areas. Shade tree planting, climbing, guying, pruning, fertilizing, cabling, and bracing. Stresses evaluation of ornamental trees and general care.
3 Cr. (2-3). *Prerequisites: OHT 115, OHT 239.*

NMG 249
LANDSCAPE DESIGN
Covers the principles and problems of landscape design. Emphasis on the proper and effective use of plant materials in developing domestic and public areas to make them as attractive and utilitarian as possible. Includes basic drawing and drafting principles. 3 Cr. (1-6).
Prerequisites: NMG 126, OHT 115.

OHT 114
HORTICULTURE SOILS
Study of soil texture, structure, organic matter, and plant nutrients as they are related to the use of lime and fertilizers. Synthetic soils and moisture-air relationships included. 3 Cr. (2-3).

OHT 115
WOODY PLANTS I
An introduction to the study of trees, shrubs and vines grown in nurseries for landscape purposes. The course stresses the identification and uses of woody plants. 2 Cr. (1-3).

OHT 116
HERBACEOUS PLANTS
A study of the classification, identification, and general culture of perennials, bulbs, and roses. Landscape use and design of flower borders is practiced. 3 Cr. (2-3).

OHT 234
PLANT PROPAGATION
Theory and practice of plant propagation by sexual and asexual means with applications in floriculture production, nursery production, and forestry. 3 Cr. (2-3).

OHT 239
PLANT INSECTS & DISEASES
Study of the insects and diseases of horticulture crops. The nature, structure, growth habits, injurious effects, and control of insects and related forms. The most common and injurious plant diseases are studied for identification and control. 3 Cr. (2-3). *Prerequisite: BIO 111.*

OHT 246
HORTICULTURE MECHANICS
Operation and maintenance of horticulture equipment to include small gasoline engines, electric motors, electrical fans, environmental controls, and other soil working and irrigation equipment. 3 Cr. (2-3).

P

PHILOSOPHY (PHL)

PHL 111
INTRODUCTION TO PHILOSOPHICAL ANALYSIS
Investigation of major perennial problems in philosophy: Meaning and Truth, Perception and External World; God, Mind and Body.
3 Cr. (3-0).

PHL 121
ETHICS AND POLITICAL PHILOSOPHY
Status of deontological language, free will and responsibility, major issue in contemporary political philosophy. 3 Cr. (3-0).

PHYSICAL EDUCATION (PED)

The Physical Education requirements for PED 101 through PED 104 may be waived with permission of the Dean and the Coordinator of Physical Education if the student has been in the Armed Services for at least one year of active duty or if it is determined that he/she should be excused because of age or physical condition.

PED 101
PHYSICAL EDUCATION
Instruction and participation in one or more of the following activities: adapted physical education, archery, badminton, basketball, beginning swimming, bowling, cross country, elementary games, fencing, physical fitness, field hockey, flag football, golf, gymnastics, karate, modern dance, skiing, soccer, softball, speedball, square dance, tennis, track and field, volleyball, water life saving, water safety instructors, wrestling, yoga, and others if there is sufficient interest in an activity not listed above. 1 Cr. (0-2).

PED 102
PHYSICAL EDUCATION
Instruction and participation in one or more of the following activities: adapted physical education, archery, badminton, basketball, beginning swimming, bowling, cross country, elementary games, fencing, physical fitness, field hockey, flag football, golf, gymnastics, karate, modern dance, skiing, soccer, softball, speedball, square dance, tennis, track and field, volleyball, water life saving, water safety instructors, wrestling, yoga, and others if there is sufficient interest in an activity not listed above. 1 Cr. (0-2).

PED 103
PHYSICAL EDUCATION
Instruction and participation in one or more of the following activities: adapted physical education, archery, badminton, basketball, beginning swimming, bowling, cross country, elementary games, fencing, physical fitness, field hockey, flag football, golf, gymnastics, karate, modern dance, skiing, soccer, softball, speedball, square dance, tennis, track and field, volleyball, water life saving, water safety instructors, wrestling, yoga, and others if there is sufficient interest in an activity not listed above. 1 Cr. (0-2).

PED 104
PHYSICAL EDUCATION
Instruction and participation in one or more of the following activities: adapted physical education, archery, badminton, basketball, beginning swimming, bowling, cross country, elementary games, fencing, physical fitness, field hockey, flag football, golf, gymnastics, karate, modern dance, skiing, soccer, softball, speedball, square dance, tennis, track and field, volleyball, water life saving, water safety instructors, wrestling, yoga, and others if there is sufficient interest in an activity not listed above. 1 Cr. (0-2).

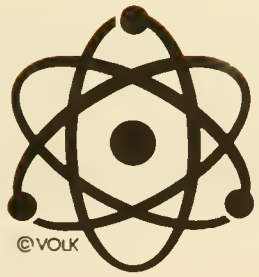
PED 105
PERSONAL AND COMMUNITY HEALTH
Up-to-date information concerning personal and community health problems of the college student today. 2 Cr. (2-0).

PHYSICS (PHS)

PHS 100
PHYSICS—MECHANICS
Lecture, demonstrations, problem-solving course in elementary mechanics; basic concepts of scientific method; the metric systems; vectors, translatory motion; rotary motion, work, power, energy; physical properties of liquids, solids, gases. 4 Cr. (3-3), 96 Hrs. *Prerequisites: MTH 103 or equivalent and one year of high school science. MTH 104 should be taken prior to or concurrent with PHS 100*

PHS 101
PHYSICS—HEAT AND LIGHT
Basic principles of heat and its measurements: thermometry, calorimetry, expansion of liquids, solids, and gases, transfer of heat; study of light including refraction, illumination, optics and color. 4 Cr. (3-3), 96 Hrs. *Prerequisite: PHS 100.*

PHS 102
PHYSICS—ELECTRICITY AND MAGNETISM
Fundamental concepts of electrostatics, electrolysis; AC and DC circuits, magnetism; electromagnetic induction; basic principles of electricity. 4 Cr. (4-0), 64 Hrs. *Prerequisite: PHS 100.*



PHS 106
INTRODUCTION TO METALLURGY
Introduction to science of physical metallurgy; chemical composition, crystallization, effects of mechanical treatment: drawing, rolling, shaping; thermal or heat treatment. 4 Cr. (4-0), 64 Hrs. *Prerequisite: PHS 100.*

PHS 112
INTRODUCTORY PHYSICS
Fundamental laws and properties of matter, mechanics, heat and light with special emphasis on electricity and magnetism. 4 Cr. (3-3).

PHS 116
GENERAL PHYSICS I
Principles of mechanics and heat. Calculus will be used whenever this method leads to a more direct solution. 4 Cr. (3-3). *Corequisite: MTH 238.*

PHS 122
RADIATION PHYSICS
The fundamentals of electrical and radiation physics and the principles underlying the operation of X-ray equipment and auxiliary devices. 3 Cr. (3-0). *Prerequisite: PHS 112.*

PHS 126
GENERAL PHYSICS II
Continuation of PHS 116. Principles of electricity, magnetism, wave motion, optics and sound. 4 Cr. (3-3). *Prerequisite: PHS 116. Corequisite: MTH 248.*

PHS 202
MECHANICS
Intermediate course in kinematics and dynamics. Differential and integral calculus are used extensively in derivations and problems. 4 Cr. (3-3). *Prerequisites: PHS 126 and MTH 248.*

PHS 236
MODERN PHYSICS
Atomic and nuclear physics including structures of atom and nucleus, radioactivity; fission and fusion; relativity; and the periodic table of elements. 4 Cr. (3-3). *Prerequisites: PHS 126 and MTH 248.*

PHS 700
PHYSICS SURVEY
Covers most of the following topics, selected to meet the needs of the majority of students in any particular section: matter and measurement; behavior of solids, liquids, and gases; mechanics, including forces, motion, energy, power, and machines; heat; sound; light; optics; magnetism; electricity; atomic phenomena. 3 Cr. (3-0), 48 Hrs. *Prerequisite: MTH 710.*

PLUMBING AND HEATING (PLH)

PLH 711
PLUMBING AND HEATING I (8 weeks)
This course is designed to acquaint the student with the plumbing and heating trade. The use of hand and power tools of the trade. Materials of trade, i.e., cast iron, copper, plastics, galvanized steel and black iron, etc. Plumbing systems such as venting—drainage—public and private sewage systems and house services. (Excluding heating systems.) 192 Hrs. (5-19).

PLH 712
PLUMBING AND HEATING II (8 weeks)
Theory and lab projects to demonstrate materials and methods used for installing domestic hot and cold water systems (excluding heat); well pump theory, installation and maintenance; set, trim and maintain basic plumbing fixtures. 192 Hrs. (5-19).

PLH 721
PLUMBING AND HEATING III (8 weeks)
Introduction to residential blueprint reading and pipe sketching; material estimates and ordering; installation and repair of residential fixtures; design and construction of individual projects.
192 Hrs. (5-19).

PLH 722
PLUMBING AND HEATING IV (8 weeks)
Introduction to commercial blueprint reading and isometric pipe sketching; material estimates and ordering; installation and repair of commercial fixtures; design and construction of cooperative group projects. 192 Hrs. (5-19).

PLH 831
PLUMBING AND HEATING V (8 weeks)
This course is designed to develop the basic skills required to calculate heat loss for residential and commercial installation. Practicum involves calculating, designing, and laying out hot water heat system. Use of lead working tools, introduction to lead wiping, and pipe bending. Introduction to acetylene welding, cutting and silver soldering.
192 Hrs. (5-19).

PLH 832
PLUMBING AND HEATING VI (8 weeks)
This course is designed to develop the basic skills required to lay out, size, and install the various Hydronic Hot Water Systems for residential and commercial installations. For gas, oil, and coal fired systems.
192 Hrs. (5-19).

PLH 841
PLUMBING AND HEATING VII (8 weeks)
This course is designed to give the student an in-depth working knowledge of steam heat systems, boilers, accessories, traps, venting, heat distributing units and safety devices. Practicum offers the student an opportunity to design, lay out and actually install functioning steam mini-systems. System maintenance and troubleshooting is emphasized.
192 Hrs. (5-19).

PLH 842
PLUMBING AND HEATING VIII (8 weeks)
Designed to prepare the student to enter the trade work force. Emphasizes techniques to open-the-door, clinch the job, and maintain employment. An effort will be made to secure gainful employment in the trade for each student. Practicum will involve compilation of letters of introduction, compilation of resumes. The use of sheet metal hand tools, materials and supplies, the functions of hot air heat systems and installation of actual hot air heat systems will be offered. The student will be introduced to the practical application of solar heating. Solar energy collection, storage and conversion to sensible heat will be employed. Actual on the job plumbing and heating will be performed.
192 Hrs. (5-10).

PRACTICAL NURSING (NUR)

NUR 710
FOUNDATIONS OF NURSING
Basic nursing knowledge and skills common to all areas of nursing practice. Emphasizes the basic needs of patients, utilizing individual patient situations, including physical hygiene, comfort, rest, nutrition; the process of developing, implementing, and evaluating nursing care plans is studied and used in patient care. Includes mental health concepts, rehabilitation needs, communication skills, drug preparation and administration, body mechanics, safety practice and basic concepts of asepsis. 384 Hrs. (6-18).

NUR 711
NURSING RELATIONSHIPS
Orientation to the program; the learning process; communication skills; concepts of health; major health problems and agencies; trends in nursing; roles and characteristics of nurses; nursing organizations; legal and religious implications; range and scope of functions of the nurse; administrative lines; fundamentals of ethical, psychological, social and human relationships. 48 Hrs. (3-0).

NUR 712
SCIENTIFIC PRINCIPLES RELATING TO NURSING
The location, description, and function of gross anatomical structures; common pathogens, their characteristics and methods of control; common elements found in the body and their relation to the body in health; the relation of physical properties to the functioning body; the process of metabolism and homeostasis; psycho-social and economic factors related to nutrition and dietary patterns, nutritional needs at all ages and under various conditions, the relation of nutrition to health; associated vocabulary. 96 Hrs. (6-0).

NUR 723
MEDICAL-SURGICAL NURSING—ELEMENTARY (15 weeks)
Principles of patient care dealing with general medical and surgical conditions. Emphasis on the adult patient in relation to his or her needs; the cause, treatment, and the prevention of illness; the nursing care involved. The student will be expected to function progressively as a contributing member of the nursing team, and to develop and carry out patient centered care plans geared to patient needs. Added skills are acquired in nursing procedures. 216 Hrs. (6-18).
(15 weeks-lecture/7 weeks-lab). *Prerequisite: NUR 710.*

NUR 724
PARENTAL AND CHILD HEALTH (15 weeks)
Focuses on the concept of the family as a unit of society. Helps prepare the student for patientside experiences with prenatal, intrapartum and post partum mothers, and the well and ill child. Growth and development, history, current trends, and community agencies in parental and child health are included. Deviations from normal are considered, but the emphasis is on normal aspects. The student participates in the care of these individuals. 234 Hrs. (6-18).
(15 weeks-lecture/8 weeks-lab). *Prerequisite: NUR 710.*

NUR 735
MEDICAL-SURGICAL NURSING—INTERMEDIATE
(15 weeks)
Continuation of NUR 723. Further develops the knowledge and skills which enable the student to provide nursing care which meets the needs of patients of all ages with major health problems. Development of skills in assisting with critically ill, unconscious, moribund and mentally ill patients. 450 Hrs. (12-18). *Prerequisite: NUR 723.*

NUR 736
PRACTICUM
Students will be assigned to the cooperating institutions for three weeks to further develop skills in nursing procedures and patient care. 75 Hrs. (0-25). *Prerequisite: NUR 735.*

PRINTING (PRI)

PRI 711
COMPOSING I
Introductory applications of major composing systems; analysis of copy, layouts, and mechanicals. 128 Hrs. (2-6).

PRI 712
PHOTOMECHANICAL I
Introductory applications of major process camera, film assembly, and platemaking operations. 128 Hrs. (2-6).

PRI 713
PRESS AND BINDERY I
Introductory applications of major printing press and bindery operations. 128 Hrs. (2-6).

PRI 714
COMPOSING II
Advanced study and applications on composing machines, copy-preparation principles, working layouts, and mechanicals. 128 Hrs. (2-6).

PRI 715
PHOTOMECHANICAL II
Advanced study and applications on process cameras, film assembly, proofing, and plating. 128 Hrs. (2-6).

PRI 716
PRESS AND BINDERY II
Advanced study and applications on ink mixing, lithographic presses, bindery equipment, and procedures. 128 Hrs. (2-6).

PSYCHOLOGY (PSY)

PSY 111
GENERAL PSYCHOLOGY
Introduction to the science of human behavior. 3 Cr. (3-0).

PSY 201
ABNORMAL PSYCHOLOGY
Principal forms of mental and emotional disorders with emphasis on their causes, symptoms, and courses of treatment. Goal to study normal behavior by examining such behavior in distortion or in exaggeration. 3 Cr. (3-0). *Prerequisite: Permission of the instructor.*

PSY 203
DEVELOPMENTAL PSYCHOLOGY
Psychological development and change throughout the life span, with emphasis on basic principles of child and adolescent development, genetic and environmental influences on the course of physical, motor, intellectual, emotional, social, and personality development. 3 Cr. (3-0). *Prerequisite: PSY 111.*

PSY 231
EDUCATIONAL PSYCHOLOGY
Psychological principles and concepts applied to learning. Individual differences, motivation and emotion. 3 Cr. (3-0). *Prerequisite: PSY 111 or permission of the instructor.*

PSY 241
SOCIAL PSYCHOLOGY
Interaction of individuals in their several group relations, the contacts of harmony, and conflict within groups as well as between groups, group leadership and group controls, phenomena of imitation and suggestion. 3 Cr. (3-0). *Prerequisite: Permission of the instructor.*

PSY 290
SPECIAL STUDIES IN PSYCHOLOGY
Special attention to particular abilities and interests of students. Individual guidance in advanced studies. Admission by permission of the instructor. 1-3 Cr. (1-3-0).

R

RADIOLOGIC TECHNOLOGY (RAD)

RAD 110
RADIOLOGIC TECHNOLOGY I
Basic concepts of ethical principles and medical structure. Chemical constituents of processing a radiographic film and efficient darkroom (processing) procedures. Theoretical and practical instruction on radiographic positioning of body structure and organs. Manipulation of exposure factors pertaining to milliamperage, kilovolts, distance, and time. 5 Cr. (3-13).

RAD 120
RADIOLOGIC TECHNOLOGY II
Theory of x-ray technique. Necessity of different radiographic views to avoid superimposition of structure. The involvement of contrast media in relation to reactions, and contraindications to these media. Emphasis on nursing procedures as they relate to radiology. 7 Cr. (4-16).

RAD 200
SUMMER INTERNSHIP
Required internships to establish eligibility for registry examination. Internships to be arranged with affiliated hospitals. 0 Cr.

RAD 230
RADIOLOGIC TECHNOLOGY III
Create a working combination or establish a new combination of exposure factors using x-ray components to produce an interpretive film. Advanced positioning of special radiographic views to demonstrate various anatomical parts. Introduces the operating suite with relationship of medical aseptic technique and radiographic procedures. Emphasis on technical special radiographic procedures. 10 Cr. (5-15).

RAD 240
RADIOLOGIC TECHNOLOGY IV
Organization, supervision, law, and finance related to radiology. Emphasizes handling diseased and injured patients. Introduces the role of radiation therapy in treatment of disease, effects on body tissue, and the methods of radiation therapy. Basic concepts of scientific research. 10 Cr. (5-15).

REAL ESTATE (RES)

RES 112
REAL ESTATE PRINCIPLES
An introduction to real estate as a profession and study of: principles, the market, types of ownership and interest, contracts, transferring property, financing, control and brokerage. This course can be applied toward the salesperson's license. 3 Cr. (3-0).

RES 113
REAL ESTATE LAW
This course covers the legal aspects of buying, selling, and holding real estate. This course can be used for the salesperson's license.
3 Cr. (3-0). *Prerequisite: RES 112 or Division permission.*

RES 114
REAL ESTATE APPRAISAL
Elementary principles and practices of appraising residential real estate, with in-depth study of the three approaches used to arrive at estimated value. 3 Cr. (3-0). *Prerequisite: RES 112 or Division permission.*

RES 115
REAL ESTATE SALES
This course will teach the basic techniques needed to become a successful real estate salesperson. 3 Cr. (3-0). *Prerequisite: RES 112 or Division permission.*

RES 116
REAL ESTATE FINANCING
This course will train the average real estate salesperson to put together a money package to successfully close a real estate deal. This course will also acquaint students with sources of funds available, methods to be used, and regulations to be aware of in purchasing, selling, or acting as an agent to sell real estate. 3 Cr. (3-0).
Prerequisite: RES 112 or Division permission.

RES 117
REAL ESTATE MANAGEMENT
This course introduces the student to the basic managerial theories and strategies relating to the real estate field. This course can be used for the real estate broker's license. 3 Cr. (3-0). *Prerequisite: RES 112 or Division permission.*

RES 119
REAL ESTATE MATH
This course covers the basic mathematics used by real estate professionals. Course credits can be applied only toward the broker's license. However, the subject matter covered is ideal as a review for individuals taking the salesperson's license. 3 Cr. (3-0).
Prerequisite: RES 112 or Division permission.

RES 120
REAL ESTATE TAXES
This course will emphasize the basic tax structure in our economy as it relates to the real estate field. This course can be used for the salesperson's and broker's license. 3 Cr. (3-0). *Prerequisite: RES 112 or Division permission.*

RES 212
REAL ESTATE PRINCIPLES II
This course is a more advanced and in-depth study of the principles of financing, transferring property, contracts, various types of ownership as they relate to real estate. This course can be used for both the salesperson's and broker's license. 3 Cr. (3-0). *Prerequisite: RES 112 or Division permission.*

S

SECRETARIAL SCIENCE (CLS & SEC)

CLS 717
CLERICAL PROCEDURES
Office procedures and managing general office situations. Includes handling mail, filing, reception work, office communication systems, development of personal qualities necessary for success, self-evaluation, good working habits and attitudes, opportunity for personality development. 176 Hrs. (5-6).

CLS 728
CLERICAL WORKSHOP
Includes instruction in the typewriting of reports, office forms, statistics, and other production work. Instruction in the use of the more common types of duplicating equipment is given. Students will operate the mimeograph and spirit duplicating machines and become familiar with the more common dictation and transcription equipment used in offices. Simulated office assignments and situations are incorporated into the program. 192 Hrs. (5-6). *Prerequisites: CLS 717, SEC 111.*

SEC 111
TYPEWRITING I
Develops a foundation in the skill of typewriting. Includes familiarization with the typewriter, development of proper attitudes, fundamentals of touch typewriting, improvement of speed and accuracy, business letters, tabulation, and typing of numerous forms. 3 Cr. (2-3), 80 Hrs.

SEC 112
OFFICE MACHINES
Understanding and operation of various types of machines used in the business office: ten-key-full-keyboard adding-listing, rotary, key-driven, and electronic calculators. 2 Cr. (1-3), 64 Hrs.

SEC 114
SHORTHAND I
Basic theory and techniques of Gregg shorthand, Diamond Jubilee system. Emphasizes outlines and proper techniques, and attainment of fluency in reading and writing shorthand. Dictation is given at 40-60+ words per minute. 3 Cr. (2-3), 80 Hrs.

SEC 121
TYPEWRITING II
Furthers the student's ability in typewriting. Emphasizes production typing, tabulation, special skill techniques, advanced letter writing, typing forms and documents, and other routine typewriting duties. 3 Cr. (2-3), 80 Hrs. *Prerequisite: SEC 111 or test qualification.*

SEC 124
SHORTHAND II
Continuation of SEC 114. Emphasizes the development of skills in taking dictation and transcription. Typing transcription is included. Dictation is given at 60-80+ words per minute on new material for three minutes with transcription at 98+ percent level of accuracy. 3 Cr. (2-3), 80 Hrs. *Prerequisite: SEC 114 or test qualification.*

SEC 128
SECRETARIAL PROCEDURES
Introduction to the responsibilities and the opportunities of the secretarial position. Emphasizes administrative aspects of secretarial work. Includes office forms, mailing operations, filing, communications, duplicating processes, and dictating and transcribing machines. 2 Cr. (2-1).

SEC 231
TYPEWRITING III
Designed for the typist with a sustained, high level, accurate, straight copy speed. Provides an opportunity to master basic typing arrangements, to review and apply technical information, and to develop creativeness and originality. Includes higher levels of executive typing – following directions, editing copy, composing letters, creating arrangements of tables, and other involved typewriting projects. 3 Cr. (2-3). *Prerequisite: SEC 121.*

SEC 234
SHORTHAND WORKSHOP
Intensive review of advanced Gregg shorthand, with dictation from 80-100+ words per minute. Development of a varied business vocabulary in both shorthand and English. Intensive training in transcription of the business letter and basic business forms leading to speed and accuracy adequate for the requirements of a modern office. Development of supplemental skills necessary for secretarial responsibilities is emphasized. 6 Cr. (4-6). 160 Hrs. *Prerequisite: SEC 124.*

SEC 244
SECRETARIAL WORKSHOP
Integrates all phases of advanced dictation, transcription, and secretarial skills. Includes intensive office-level practice. 8 Cr. (5-9), 224 Hrs. *Prerequisite: SEC 234.*

SEC 245
OFFICE INTERNSHIP
Practical experience obtained through work assignments in college offices. 1 Cr. (0-3).

SEC 709
TYPEWRITING
For non-business students. Includes touch typewriting, speed and control, familiarization with business letters, reports and forms, and personal typewriting. 1 Cr. (0-3), 48 Hrs.

SERVICE & OPERATION OF HEAVY CONSTRUCTION EQUIPMENT (SOE)

SOE 711
SERVICE AND OPERATION I (8 weeks)
Introduction to heavy equipment mechanics, starting with basic tools, micrometers, lifting equipment, and progressing into complete engine nomenclature and overhaul. 200 Hrs. (5-20).

SOE 712
SERVICE AND OPERATION II (8 weeks)
Basic vehicle electrical systems including electro-magnetism, ignition circuits, starting circuits, and electric troubleshooting. 200 Hrs. (5-20).

SOE 723
SERVICE AND OPERATION III (8 weeks)
Introduction to the maintenance and repair of diesel engines, various types of clutches, gear type transmissions, and differentials. Maintenance of seals and anti-friction bearings. 200 Hrs. (5-20).

SOE 724
SERVICE AND OPERATION IV (8 weeks)
Introduction to the maintenance and repair of final drives, undercarriages, tracks, and tires. Maintenance and repair of brake systems. 200 Hrs. (5-20).

SOE 835
SERVICE AND OPERATION V (8 weeks)
Introduction to the various types of hydraulic systems used on heavy construction equipment including pumps, motors, valves, cylinders, etc. 200 Hrs. (5-20).

SOE 836
SERVICE AND OPERATION VI (8 weeks)
Introduction to the service, repair, testing, and troubleshooting of torque converters and power shift transmissions. Introduction to the hydrostatic transmission and testing of the hydrostatic transmission. Advanced electrical circuits and troubleshooting. 200 Hrs. (5-20).

SOE 847
SERVICE AND OPERATION VII (8 weeks)
Introduction to basic construction surveying, construction blueprint reading, and grade stake reading. Operation of various types of heavy construction equipment such as dozers, loaders, motor graders, and scrapers. Service of the machines operated. 200 Hrs. (5-20).

SOE 848
SERVICE AND OPERATION VIII (8 weeks)
A continuation of SOE 847 emphasizing the development of skills as an equipment operator or mechanic. 200 Hrs. (5-20).

SIGN PAINTING (SIG)

SIG 711
SIGN PAINTING I
Introduction to sign painting as related to the basic alphabet, the drawing alphabet and the fundamentals of alphabets. Use, care, and understanding of sign painting tools and materials. Emphasis in the development of skill with a variety of brushes. 400 Hrs. (1-24).

SIG 721
SIGN PAINTING II
Emphasis on laying out and painting, paper signs, and showcards. Instruction in commercial signs, truck and window lettering is provided. Use of tempera and bulletin colors is covered. 400 Hrs. (1-24).

SIG 811
SIGN PAINTING III
During the advance phase, billboard lettering, commercial signs and pictorial work are covered. Use of bulletin colors and lettering quills is introduced in this segment of instruction. 400 Hrs. (1-24).

SIG 821
SIGN PAINTING IV
Designed to allow the student to continue practicing showcard layout and commercial signs. Gold leaf applications, glass, and surface gilding are covered. 400 Hrs. (1-24).

SOCIOLOGY (SOC)

SOC 111
INTRODUCTION TO SOCIOLOGY
An introduction to the basic concepts and methods used in studying the group life of human beings. 3 Cr. (3-0).

SOC 112
GENERAL ANTHROPOLOGY
Survey of the physical and cultural evolution of humans and society. Emphasizes the relationship of the human physical structure to behavior and comparative descriptions of recent primitive societies. 3 Cr. (3-0).

SOC 121
INTRODUCTION TO SOCIAL WORK
Basic concepts of social welfare programs, social case work, and field work. Especially designed for students planning a career in social work. 3 Cr. (3-0). *Prerequisite: SOC 111.*

SOC 231
MARRIAGE AND THE FAMILY
Examination of traditional and contemporary American marital and family relationships. 3 Cr. (3-0). *Prerequisite: SOC 111.*

SOC 241
URBAN SOCIOLOGY
The concept of community as it operates and affects individual and group behavior in rural, suburban, and urban settings. Emphasizes characteristic institutions and problems of modern city life. 3 Cr. (3-0). *Prerequisite: SOC 111.*

SOC 242
CRIMINOLOGY
The social relationships and situations involved in the causes and prevention of crime and juvenile delinquency. Particular emphasis on the functioning of the U.S. criminal justice system. 3 Cr. (3-0). *Prerequisite: SOC 111.*

SOC 290
SPECIAL STUDIES IN SOCIOLOGY
Special attention to particular abilities and interests of students. Individual guidance in advanced studies. Admission by permission of the instructor. 1-3 Cr. (1 to 3-0).

SPANISH (SPA)

SPA 111
BEGINNING SPANISH I
Basic grammar and language structure. Comprehension, speaking and reading, with particular regard to pronunciation and accent. 3 Cr. (3-0).

SPA 121
BEGINNING SPANISH II
Continuation of SPA 111. 3 Cr. (3-0). *Prerequisite: SPA 111.*

T

TOOL DESIGN TECHNOLOGY (TDT)

TDT 231
TOOL DRAFTING (8 weeks)
Transition between mechanical drafting and tool design; drawings, techniques; purchased parts; standards of shop drawings; material lists; design of cutting tools. 4 Cr. (4-12). *Prerequisite: EDT 112.*

TDT 232
FIXTURE DESIGN (8 weeks)
Design of leaf and tumble jigs, plain and index milling fixtures, vise jaws, chuck jaws, lathe fixtures, and adaptor plates. 4 Cr. (4-12).

TDT 241
GAGE DESIGN AND PROGRAMMING (8 weeks)
Writing programs for point to point and contouring tape controlled machines; design of plug, snap, ring, flush pin depth, length, and indicating gages. 4 Cr. (4-12). *Prerequisite: EDT 112.*

TDT 242
DIE DESIGN (8 weeks)
Designing of cutting, forming, drawing, and cavity dies; simple progressive and compound arrangements. 4 Cr. (4-12).

W

WELDING (WEL)

WEL 701
ACETYLENE WELDING
Selected units in basic acetylene welding for plumbing students. 80 Hrs. (0-5).

WEL 702
ELECTRIC WELDING
Selected units in basic electric welding for plumbing students. 80 Hrs. (0-5).

WEL 711
ACETYLENE WELDING
Theory and practice welding of sheet metal and mild steel plate; oxyacetylene cutting; pipe welding, welding and brazing of ferrous and non-ferrous metals; weld testing; shop safety. 400 Hrs. (1-24).

WEL 721
ELECTRIC WELDING
Principles and applications for basic electric welding using various types of electrodes for welding of steel plate in all positions, pipe welding; cast iron welding, weld testing. 400 Hrs. (1-24).

WEL 831
INERT GAS WELDING
Theories and practices of manual inert gas shield technique (TIG) and short arc, high speed, semi-automatic, metallic arc process (MIG). 400 Hrs. (1-24).

WEL 841
WELDING (ADVANCED)
Practical theory and application of weldments of specifications of AWS, API and ASME codes; all position welding of heavy plate and pipe; testing and weld specimens. 400 Hrs. (1-24).

COMMENCEMENT AWARDS

Commencement awards give public recognition of achievement in various areas accompanied by cash awards in varying amounts.

ALCAN CABLE AWARD for scholastic achievement in engineering science. (Engineering Drafting, Electrical, Electronics, Automotive, or Carpentry Building Construction Technology)

ANCHOR/DARLING VALVE AWARD for scholastic achievement in a certificate program in applied arts and sciences.

AMERICAN SOCIETY OF HIGHWAY ENGINEERS AWARD to a student demonstrating high interest, dedication and scholarship in civil engineering.

AVCO AWARD for scholastic achievement in humanities and social sciences.

LEWIS H. BARDO MEMORIAL AWARD to a student who exemplifies the ideals of Lewis H. Bardo (devotion to duty, helpfulness to others, friendliness, high ideals).

DALE RUSS BERG AWARD for proficiency in the operation and use of heavy equipment.

ELLEN HARDING BERRY – ALUMNI AWARD to a female student for scholastic achievement and service to the College.

ELLEN HARDING BERRY NURSING AWARD, presented to the student who has displayed outstanding scholastic achievement and exceptional ability in practicum and communication skills.

CENTRAL PENNSYLVANIA CHAPTER OF CHARTERED LIFE UNDERWRITERS' AWARD to an outstanding student in the two-year Associate Degree Program in the Business and Computer Science Division who shows promise in the insurance field.

DR. EUGENE CHIANELLI AWARD to the student who displays the most proficiency in preventive dentistry.

DR. EUGENE CHIANELLI AWARD to the graduate student who has overcome the greatest obstacles or hardships in completing his/her education in the School of Dental Hygiene.

COMMONWEALTH BANK & TRUST COMPANY DATA PROCESSING DEPARTMENT AWARDS to two outstanding students in the Computer Science Program, one for the two year Associate Computer Science Degree and one for the one year Certificate Computer Operator Course, based on the following criteria: scholastic attainment, leadership ability, and contribution to data processing education at WACC.

THE COMPUTER SCIENCE FACULTY AWARDS to two outstanding students in the Computer Science Program who have excelled in the program and who have exhibited those qualities of leadership, friendship, cooperation, and dedication that will make him/her a valuable addition to the profession. One award will be given to a two-year Computer Science Associate Degree student and one to a one-year Computer Operator Certificate student.

DEANS' AWARD for scholastic achievement and service to the College.

ELIZABETH R. DOWNS AWARD for secretarial proficiency.

GLENN E. DUNLAP SCHOLARSHIP AWARD to a student selected by faculty of the Building Construction Department, based on high scholarship standing, better than average skills, dependability and competence, and on capabilities of leadership as exemplified by Glenn E. Dunlap.

FLECK-MARSHALL OF WILLIAMSPORT, INC. AWARD to the graduating student with the highest grade point average in Plumbing and Heating.

GAMMA EPSILON TAU FRATERNITY AWARD to the student in the Graphic Arts Program who exhibits outstanding development in skill, capability and leadership, and a willingness to help others.

HELEN A. SMITH AWARD to the student who has shown extraordinary achievement in theory, practice, and personal growth in Practical Nursing.

HOFF SUPPLY COMPANY AWARD, in memory of the late Samuel H. Hoff, Sr., for his understanding and appreciation of the need for plumbing and heating tradespeople to be able to use mathematics effectively and accurately in the application of their craft, to the graduating student in Plumbing and Heating who excelled in related mathematics and attended college under exceptional conditions.

INTERNATIONAL BROTHERHOOD OF ELECTRICAL WORKERS AWARD to the outstanding student in the Electrical Construction Division.

THE RICHARD M. KNAUR AWARD for a student who shows excellence in the field of business and technology and is planning on pursuing this field as his/her life work.

LEADER NURSING CENTER AWARD to a student in the Practical Nursing program.

LYCOMING RADIOLOGY ASSOCIATION LIMITED, INCORPORATED AWARD for the student who most nearly exemplifies the ideals of selflessness, unusual devotion to duty, sensitivity to the patient's comfort and needs, and service to colleagues, patients, and hospitals beyond the ordinary.

EWING MUESELER AWARD for the student showing the highest degree of proficiency in the Diesel Program.

THE NORTH CENTRAL PENNSYLVANIA CHAPTER OF THE ASSOCIATION FOR SYSTEMS MANAGEMENT AWARD to a deserving student majoring in Computer Science.

NORTHERN CENTRAL BANK ANNUAL AWARD to a graduate student in the two year Computer Science associate degree curriculum based on the following criteria: the student (1) must plan to enter the data processing field, (2) must have demonstrated excellence in programming and other data processing curriculum, (3) must have maintained an above average total scholastic achievement, and (4) must have demonstrated a high degree of leadership ability.

PENNSYLVANIA INSTITUTE OF CERTIFIED PUBLIC ACCOUNTANTS AWARD for excellence in accounting studies under criteria set forth by the Pennsylvania Institute of Certified Public Accountants.

PENN-YORK LUMBERMEN'S AWARD for outstanding citizenship and interest in management and wise use of forest resources.

PHI BETA LAMBDA FRATERNITY AWARD for performance and dedication to the fraternity.

PRESIDENT'S AWARD for leadership and service to the college community.

PULLMAN POWER PRODUCTS, DIVISION OF PULLMAN, INC., AWARD for scholastic achievement in an associate degree program in applied arts and sciences.

RAUB SUPPLY COMPANY AWARD to the most outstanding student in the Electrical Construction curriculum.

CHAPTER 49 OF THE SOCIETY OF MANUFACTURING ENGINEERS (SME) AWARD, a certificate of merit to the SME student-member who has contributed most to the advancement of manufacturing education.

WILLIAM J. STITZEL MEMORIAL AWARD for the graduate from the heavy construction equipment department who best exemplifies William J.Stitzel's dedication and service to the College and the student body.

ROBERT G. THOMAS AWARD for the graduating student who has attained the highest cumulative average in welding.

TRUSTEES' AWARD to a female student for achievement under exceptional conditions.

TRUSTEES' AWARD to a male student for achievement under exceptional conditions.

U.A. LOCAL NO. 810 PLUMBERS AND STEAMFITTERS AWARD to a graduating student in Plumbing and Heating, residing in the Local No. 810 membership area, who has shown a strong interest and desire to become a member of the Plumbers and Steamfitters Local No. 810.

WALL STREET JOURNAL STUDENT ACHIEVEMENT AWARD to that graduating student demonstrating superior achievement in business administration.

WEST BRANCH DATA PROCESSING AWARD to an outstanding student in the computer science field.

WEST BRANCH RADIOLOGICAL ASSOCIATES AWARD to an outstanding graduate student of the Radiologic Technology Associate Degree Program who has demonstrated high scholastic achievement, competence in and dedication to the profession, and a caring attitude toward all people.

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WILLIAM HOMISAK/ASSISTANT TO THE PRESIDENT; B.S., Bloomsburg State College; M.Ed., University of Pittsburgh; D.Ed., The Pennsylvania State University

GRANT M. BERRY, JR./DIRECTOR OF RESOURCE DEVELOPMENT; A.B., Lycoming College; M.Ed., The Pennsylvania State University; Ph.D., The University of Connecticut

BARBARA A. GILMOUR/COMMUNICATIONS DIRECTOR; B.A., M.A., The Pennsylvania State University

DONALD S. SHADE/INSTITUTIONAL RESEARCH COORDINATOR; A.A., The Williamsport Area Community College; B.A., Bloomsburg State College

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ROBERT EDLER/BOOKSTORE MANAGER

JUDITH DEMKO/COORDINATOR, DUPLICATING AND MAIL SERVICES; Certificate, Williamsport Technical Institute

JANICE ODELL/PURCHASING AGENT

HARRY TUPPER/WAREHOUSE SUPERVISOR

GEORGE MOSTELLER/COORDINATOR, INVENTORY AND SURPLUS PROPERTY PROCUREMENT

Computer Center

WILLIAM T. WARD/DIRECTOR, COMPUTER CENTER; B.S., Wisconsin State University; M.S., George Washington University

CHARLES H. WHITFORD/APPLICATION PROGRAMMER

Financial Operations

WILLIAM C. ALLEN/DIRECTOR, FINANCIAL OPERATIONS; B.S., The Pennsylvania State University

JAMES C. McMAHON/CHIEF ACCOUNTANT; B.A., Lycoming College

DAHLIA SIMEON/ACCOUNTANT; C.P.A.(Philippines); A.S., St. Williams College; B.S., University of the East

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RAYMOND C. LOWE/DIRECTOR,PHYSICAL PLANT

JOHN ROBINSON/ASSISTANT TO THE DIRECTOR OF PHYSICAL PLANT

ROBERT LINN/SUPERVISOR, CUSTODIAL SERVICES

HARRY BAILEY/SUPERINTENDENT, MAINTENANCE

LAWRENCE SMEAK/CHIEF SECURITY OFFICER

Student Records

KATHRYN MARCELLO/DIRECTOR, STUDENT RECORDS; B.A., Lycoming College

POSTSECONDARY DEGREE AND CERTIFICATE PROGRAMS

EDMOND A. WATTERS III/DEAN, DEGREE & CERTIFICATE PROGRAMS; B.A., M.A., D.Ed., Lehigh University

LUENE H. CORWIN/ASSISTANT DEAN, DEGREE & CERTIFICATE PROGRAMS; B.A., Whittier College; M.S., Simmons College; Ph.D., Cornell University

Cooperative Education

WILLIAM BRADSHAW/DIRECTOR, COOPERATIVE EDUCATION; B.S., M.S., Mansfield State College

Learning Resources Center

DAVID P. SIEMSEN/DIRECTOR, LEARNING RESOURCES CENTER; B.S., Josephium College; M.S.L.S., University of Pittsburgh

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NANCY ELIAS/NURSE, DISPENSARY; R.N.

MARY BARDO/TOT WATCH SUPERVISOR, SUMMER NURSE

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MARGARET M. SAMUEL/ASSISTANT DIRECTOR, ADMISSIONS; B.S., The Pennsylvania State University

Career Development Center

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THOMAS C. SHOFF/COUNSELOR; B.S., M.Ed., The Pennsylvania State University

ANNA D. WEITZ/CAREER DEVELOPMENT SPECIALIST; A.B., Boston University; M.S., State University of New York at Albany

Developmental Studies

VERONICA M. MUZIC/COORDINATOR, DEVELOPMENTAL STUDIES AND ACT 101; B.A., Misericordia College; M.A., Bucknell University

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Financial Aid

MICHAEL TYSON/DIRECTOR, FINANCIAL AID; B.S., Juniata College; A.M., University of Illinois

JULIANN PAWLAK/FINANCIAL AID ASSISTANT; B.A., Lycoming College; M.A., Bucknell University

Housing

MARK W. DOREY/HOUSING COORDINATOR; A.A., The Williamsport Area Community College

Student Activities and Placement

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COMMUNITY AND CONTINUING EDUCATION

DEAN, COMMUNITY AND CONTINUING EDUCATION

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LINDA FENNER/COORDINATOR, ADULT BROKERAGE COUNSELING PROJECT; B.S., The Pennsylvania State University; M.Ed., The American University

Postsecondary Full-Time Teaching Faculty

SCOTT APPLEMAN/INSTRUCTOR, SERVICE AND OPERATION OF HEAVY CONSTRUCTION EQUIPMENT; Certificate, The Williamsport Area Community College

ALEX W. BAILEY/ASSOCIATE PROFESSOR, BUSINESS ADMINISTRATION; B.S., Indiana University of Pennsylvania; M.S., The Pennsylvania State University

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W. ROBERT DITTMAR/ASSISTANT PROFESSOR, DRAFTING; B.A., Geneva College (on leave, Fall 1978)

FRED W. DOCHTER/INSTRUCTOR, CARPENTRY AND BUILDING CONSTRUCTION TECHNOLOGY

J. RODGER DORAN/INSTRUCTOR, AUTOMOTIVE; B.A., The Pennsylvania State University

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CARYLL ECK/INSTRUCTOR, PRACTICAL NURSING; R.N., Williamsport Hospital School of Nursing

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JAMES W. FOX/INSTRUCTOR, WELDING

GLENN F. GETCHEN/INSTRUCTOR, MACHINE TOOL TECHNOLOGY

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THOMAS G. GRAY/ASSISTANT PROFESSOR, PHYSICAL EDUCATION; B.S., Lock Haven State College; M.Ed., Temple University

RAYMOND A. GREAVES/INSTRUCTOR, AVIATION

RICHARD GREENLY/INSTRUCTOR, BUSINESS ADMINISTRATION; B.S., M.S., Bloomsburg State College

FRANK C. GRENOBLE/ASSOCIATE PROFESSOR, CARPENTRY AND BUILDING CONSTRUCTION TECHNOLOGY; Masters Equivalent

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ROBERT L. HAFER/INSTRUCTOR, AUTO BODY REPAIR

JOHN HAMMOND/ASSOCIATE PROFESSOR, AUTOMOTIVE; B.S., The Pennsylvania State University

WALTER HARTMAN/ASSISTANT PROFESSOR, TECHNICAL ILLUSTRATION AND ADVERTISING ART; Diploma, Philadelphia Museum School of Art

PAUL L. HEIM/ASSISTANT PROFESSOR, CARPENTRY

PHILIP HENNING/INSTRUCTOR, ELECTRICAL TECHNOLOGY AND CONSTRUCTION; B.A., The Pennsylvania State University; M.A., San Francisco State University

MATTHEW T. HILLEN/ASSISTANT PROFESSOR, BUSINESS ADMINISTRATION; B.S., University of Dayton; M.A., University of Pittsburgh

CARL M. HILLYARD/INSTRUCTOR, CARPENTRY

ROBERT T. HUTCHINSON/INSTRUCTOR, CARPENTRY AND BUILDING CONSTRUCTION TECHNOLOGY

FORREST JOHNSTON/INSTRUCTOR, MACHINE SHOP

JOHN H. JONES/INSTRUCTOR, MATHEMATICS; B.S.E.E., The Pennsylvania State University

LYLE W. KEELER/INSTRUCTOR, ELECTRICAL TECHNOLOGY AND CONSTRUCTION

G. ROBERT KISSELL/PROFESSOR, HISTORY AND GOVERNMENT; B.S., Lock Haven State College; M.S.Ed., Bucknell University

GEORGE KLINE/INSTRUCTOR, ELECTRICAL TECHNOLOGY AND CONSTRUCTION

HARVEY H. KUHNS, JR./ASSOCIATE PROFESSOR, ECONOMICS; B.S., Lycoming College; M.S., Bucknell University

PHILLIP D. LANDERS/ASSISTANT PROFESSOR, BUSINESS ADMINISTRATION; B.S., Bloomsburg State College; M.B.A., Michigan State University

FRANK P. LEACH/INSTRUCTOR, PLUMBING; A.O.S., Culinary Institute of America

JOHN H. LEGO/INSTRUCTOR, MATHEMATICS; B.S., The Pennsylvania State University

PATRICIA E. LEWIS/ASSISTANT PROFESSOR, MATHEMATICS; B.S., Lycoming College; M.S., Bucknell University

JAMES E. LOGUE/ASSOCIATE PROFESSOR, ENGLISH; B.A., M.A., Bucknell University (on leave, Fall 1978)

ROBERT L. LYONS/INSTRUCTOR, MARKETING/ MERCHANDISING; B.S., The Pennsylvania State University

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EDWON STROBLE, JR./Owner-Operator, Stroble's Garage

STEVEN WHIPPLE/Owner-Operator, Whipple's Auto Body

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RALPH EVANS/Owner-Operator, Ralph's Ford Service Center

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RICHARD TRIACA/Service Manager, John Powell Chevrolet

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C. D. KELLER/Co-Owner-Operator, Keller & Schell

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PAUL McKOWN/General Manager, Continental Trailways

FRANK L. SNYDER/General Manager, Novo Truck & Equip. Rentals, Inc.

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Western Civilization II (HIS 121) – 101
Woodworking for Carpenters (BCT 111) – 85
Woody Plants I (OHT 115) – 106
Woody Plants II (NMG 126) – 105
Woody Plants III (NMG 237) – 105
World Literature (ENL 231) – 97

1978

FALL SEMESTER

August

Mon.	21	Late Registration
Tues.	22	Convocation
Thurs.	24	Orientation
Fri.	25	Orientation
Mon.	28	Classes Begin

September

Fri.	1	Last Day to Request Advanced Placement Last Day to Add Classes
Mon.	4	Labor Day Vacation
Tues.	5	Classes Resume
Fri.	15	Last Day to Drop Classes Last Day to Withdraw with Partial Refund

October

Wed.	11	Last Day to Apply for December Graduation
Fri.	20	Staff Development Day – No Classes

November

Fri.	17	Last Day to Withdraw with a "W" Grade
Thurs.	23	Thanksgiving Day Vacation
Fri.	24	Thanksgiving Vacation
Mon.	27	Buck Season Vacation
Tues.	28	Classes Resume

December

Wed.	20	Last Day of Classes
Thurs.	21	Grades Due in Student Records Office

1979

SPRING SEMESTER

January

Wed.	3	Last Day to Pay and Reserve Classes
Tues.	9	Late Registration
Wed.	10	Orientation
Mon.	15	Classes Begin
Fri.	19	Last Day to Request Advanced Placement Last Day to Add Classes

February

Fri.	2	Last Day to Drop Classes Last Day to Withdraw with Partial Refund
Fri.	23	Last Day to Apply for May Graduation
Mon.	26	Winter Vacation
Tues.	27	Winter Vacation
Wed.	28	Winter Vacation

March

Thurs.	1	Winter Vacation
Fri.	2	Winter Vacation
Mon.	5	Classes Resume

April

Fri.	13	Good Friday – Vacation
Mon.	16	Easter Vacation
Tues.	17	Classes Resume
Wed.	18	Last Day to Withdraw with a "W" Grade

May

Fri.	11	Last Day of Classes
Mon.	14	Grades Due in Student Records Office
Tues.	15	Orientation
Wed.	16	Orientation
Thurs.	17	Orientation
Fri.	18	Orientation
Sat.	19	Commencement

Please send me an Application for Admission form to
THE WILLIAMSPORT AREA COMMUNITY COLLEGE

Name _____

Address _____ Tel. No. _____

City _____ State _____ Zip Code _____

High School _____ Year of Graduation _____

College (s) _____

I am interested in the _____ Curriculum _____

I would like further information about _____

_____

_____

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_____

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Williamsport, Pennsylvania 17701

College Offices are open throughout the year, except on official College holidays, from 8:00 A.M. to 4:00 P.M. Monday through Friday.

The Community College reserves the right to make any changes it deems advisable after publication of this Catalog. Each student is expected to be familiar with the information presented in this Catalog and other College publications.

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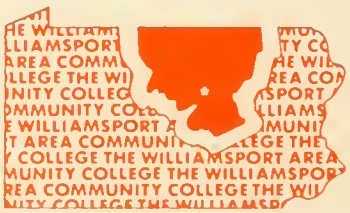

The Community is our Campus